



# Industrial Standardization

*and Commercial Standards Monthly*

May  
1934

*see Article, Page 93*

## This Issue:

Front Cover: Window cleaners washing the 217,800 sq. ft. of glass in the 6,600 windows of the Empire State building, New York. The building is 1,248 ft. high and has 102 stories. (See page 93.)

ASA Assumes Building Code Work of Department of Commerce. By P. G. Agnew.....	81
American Petroleum Institute Representative Named .....	83
Noise Measurement Standards. By J. W. McNair .....	85
American Standards Guide Manufacturing and Selling. By R. B. Harper.....	88
Pipe Standards Mark Progress in Technology.....	90
New Code Lessens Window Cleaning Hazards.....	93
Progress Shown in Ferrous Metallurgical Standards .....	95
Fifteen Non-Ferrous Projects Show Developments .....	96
Standards for Silk Weighting Asked by Consumers .....	98
Work on Cotton Shrinkage, Textile Standards.....	100
Progress of Miscellaneous Standards Reported.....	102
Specifications and Test Methods Developed.....	108
Seattle Fire Chief Urges Oil-Burner Standards... ..	82
N.E.M.A. Takes Joint Membership in ASA.....	84
Lauds Occupational Insurance Proposal.....	84
duPont Company is ASA Member.....	84
Harrison Heads Industrial Machinery Division..	87
Gilbert & Barker is ASA Member.....	89
Aids to Consumer Buying Published.....	92
Recovery Capacity of Heaters to be Increased..	94
Wright Aeronautical is ASA Member.....	94
A.S.T.M. Annual Meeting June 25-29.....	97
Says Specifications are Vital to Industry.....	99
Coal Classification Underway in Russia.....	101
Manufacturers Use ASA Service in Exports.....	101
Home Economists to Hold Convention.....	101
Railway Motors Work Expanded.....	101
Alfred J. Jupp.....	105
New Publications in ASA Library.....	105
Power Switchgear Work is Extended.....	106
Russian Gets Thermometer Data.....	106
Will Write Methods for Coal Tests.....	106
Minimum Measurements for Clothing.....	107
Conference Adopts Asphalt Tile Standards.....	107
British Color Standards for Paint.....	107
Furriers Name Standards Experts.....	107
Brush Makers Ask for Simplification.....	107
British Begin Package Standardization.....	108

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# ASA Assumes Building Code Work Of the Department of Commerce<sup>1</sup>

**Bureau of Standards Will Continue to Assist in Research and Testing as Work Progresses**

by  
**P. G. Agnew**

*Secretary, American Standards Association.*

THE American Standards Association is to assume responsibility for the work of the former Building Code Committee of the Department of Commerce, as a part of the plan of cooperation between the ASA and the Government.<sup>2</sup> The Bureau of Standards is to furnish whatever assistance it can on research and testing in connection with technical questions that may arise.

The Bureau's research and testing on fire resistance of construction materials and assemblies, on the compressive strength of masonry walls, on mortars, on stucco, on wind pressures, and on much of the equipment that goes into a modern building has been most important. Many other laboratories have also added to the available supply of knowledge concerning building materials and appliances. Without such tests, progress would be made exceedingly difficult. It seems to me especially fortunate that the Bureau offers to continue its excellent work in this field.

## **Elevator Code Is Latest**

The most recent code published as an American Standard which is closely tied up with building code regulation is the Safety Code for Elevators, Dumbwaiters, and Escalators. The first edition was published in 1921 and was prepared by a committee of the American Society of Mechanical Engineers with the assistance of manufacturers, insurance carriers, and regulatory bodies.

The practical application of this code in the formulation of state regulations and municipal ordinances pointed out the need for its further

development. The A. S. M. E. then requested the ASA to authorize a revision of the code under its procedure. The work was done by a sectional committee on which all the groups concerned were represented, under the joint leadership of the American Institute of Architects, the Bureau of Standards, and the A. S. M. E.

This sectional committee held meetings for two years and in 1925 the revised code was published as an American Standard.

## **Research Was Required**

After publication of this standard, the need for research and testing on the design and construction of auxiliary devices for elevators became more apparent. Consequently, a Subcommittee on Research Recommendations and Interpretations was appointed. Under the auspices of this committee an extensive testing program was carried on at the Bureau of Standards and was financed by the industry through the subcommittee.

The results of this series of tests, the experience of State and municipal officials with regulatory provisions of the code, the ever-increasing need for more knowledge of elevator installation for high buildings, prompted the sectional committee to undertake a revision of the 1925 code to clarify some of the rules as well as to include those advances which had been made in elevator construction and installation.

This second revision was published in 1931. An important feature of this last revision was the character of the membership of the sectional committee responsible for the work. It consisted of 37 members fully representative of the building, manufacturing, insurance, and governmental interests.

At many other points our work has been closely related to building regulation. For example, the

<sup>1</sup> Abstract of an address made before the Joint Conference of Building Officials of America and the New England Building Officials Conference, Boston, Mass., April 25, 1934.

<sup>2</sup> This plan of cooperation was outlined in the March, 1934, issue, *Industrial Standardization and Commercial Standards Monthly*.

### **Building & Plumbing Code Work of Utmost Importance**

The Building and Plumbing Code work, now taken over by the American Standards Association from the Department of Commerce as a result of the plan of cooperation, is undoubtedly the most important subject on its schedule.

Rehabilitation of the building industry and the solution of the housing problem are of great importance to the national welfare. Bad housing is costing municipal governments tremendous sums for fire, insanitary living conditions, crime and delinquency. It is undermining the moral fiber of the city population of the nation—a majority of the American public.

There is no doubt that inadequate building laws, and insufficient budgets for their enforcement, constitute a large factor in our present troubles.—*C. M. Stegner, Commissioner of Buildings, Cincinnati.*

National Electrical Code and the National Electrical Safety Code have been approved as American Standards. Recently approval has been given to standards to safeguard building operations. The revision of the Building Exits Code was approved as American Tentative Standard in 1927 and revised in 1929. Many other American Standards concerning civil engineering and building trades, mechanical and electrical engineering form important sections of the technical content of building codes, such as the Fire Tests of Building Construction and Materials, and the Code on Ventilating Standards now under way.

#### **Materials Specifications Developed**

In addition to the standards already mentioned, the ASA has also been instrumental in the development of specifications for materials used in building construction. It appears likely that material standards will play an increasingly important role in future building codes.

The relation of this considerable group of standards already completed or under way to building codes has been well summarized by a definition of a building code given by George N. Thompson in a symposium on building codes:

"The building code is a medium through which standards—standards of quality, standard methods of tests, and so on—may be correlated and made to function as a smoothly working piece of machinery in the interest of protection of the public." (INDUS-

TRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY, October, 1933, p. 161.)

With the exception of the largest cities, municipalities in general evidently have not had the staff, time, or funds to conduct the research essential in order to prepare amendments to building codes which will keep them up to date, rational, and reasonably standardized. Most states have either neglected responsibility in this connection or have not had the funds and facilities to undertake the task.

The collection of the large amount of test data on building materials now extant, the bringing together at the start of all interested parties, the outlining of necessary research programs, would seem to be a task for a centralizing agency. Building code work should proceed from the point where it now finds itself.

The provisions of local building ordinances will have a direct bearing on much of this proposed construction. The question may arise, Are present building code requirements too severe or too lax? Do they hamper construction by requiring excessive amounts of building materials or do they go to the other extreme and permit "jerry-building"?

There will always be need for improving building codes, especially when considered on a national scale. Whatever can be done to broaden the base on which these codes are founded seems to me to be a step in the right direction. It is my hope that the American Standards Association can contribute to this end.

### **Seattle Fire Chief Urges Oil-Burner Standardization**

More than 250 different makes of oil-burners are being sold in Seattle, Wash., many of local construction by new oil-burner companies and some of numerous "parts". An effort is being made to standardize oil-burning equipment in the city.

Prescribed largely by the Seattle Fire Department as a fire prevention method, a bill, designed to give standardization to the type of installation of oil-burner equipment in all buildings in the metropolitan and city limits, has been drafted.

Homes, factories, and all other types of buildings going in for oil burners are affected by the new measure. Some oil burners have been installed and when defects were discovered and they ceased to function, home-owners have found the machine was an "orphan," with the company out of business.

According to President V. C. Webster, of the Seattle Council, the new effort at stabilization and standardization of the types of oil burners offered will make easier the repair and service, and prevent "orphans."—*Oil Heat, March, 1934.*

## American Petroleum Institute Names Representative to Standards Council

Dr. R. P. Anderson has been designated as the representative of the American Petroleum Institute on the Standards Council of the American



*Underwood & Underwood*

**R. P. Anderson**

Dr. Anderson is also the American Standards Association representative on the International Standards Association technical committee on

Standards Association. The Institute recently became a Member-Body of the ASA. Dr. Anderson has been staff technologist of the Institute since June, 1924. Since organization of the Institute's Division of Refining in 1930 he has been divisional secretary. He is also chairman and/or secretary of a number of Division of Refining committees. He has for many years been secretary of A.S.T.M. Committee D-2 which is identical with ASA Committee Z11 on Petroleum Products and Lubricants.

Nomenclature and Methods of Test of Petroleum Products. This committee, whose secretariat is held by the ASA, held its first meeting in London in July, 1933, during the World Petroleum Congress.

Carl A. Young, of Dallas, Texas, alternate to Dr. Anderson on the Standards Council, has been in charge of the Institute's standardization program since May, 1924. He was organizer and director of the Division of Standardization until, in 1930, it became a department of the Institute's Division of Production, of which Mr. Young now is secretary. He still directs the standardization program and is chairman or secretary of many Division of Production committees. Prior to his affiliation with the Institute in 1924, Mr. Young was associated with the Lucey Mfg. Corp.



*Underwood & Underwood*

**C. A. Young**

### Standards Were Early Activity of American Petroleum Institute

Standardization work of the American Petroleum Institute represents a project almost as old as this national trade association itself.

The need for such work was broached at the Institute's first annual meeting at Washington, D. C., in 1920, a year after organization. Committees were appointed to study the subject, and at a meeting at St. Louis, Mo., in December, 1922, the Institute's Board of Directors accepted their recommendations and adopted resolutions calling for standardization, simplification, and improvement of oil-field equipment and methods.

Early standardization work with oil-field equipment was begun by special Institute committees. Cooperation was sought from representatives of manufacturers and other organizations, including the Purchasing Agents Association of Tulsa, the American Society for Testing Materials, U. S. Department of Commerce Simplification Bureau, U. S. Bureau of Mines, National Bureau of Standards, Mid-Continent Oil and Gas Association, etc.

By 1923 "American Petroleum Institute Standards and Specifications" were established and committees were working for standardization of casing, rotary drill pipe,

cable tools, rig irons, rotary tool joints, belting, boilers, derricks, wire rope, and manila cordage. At the 1923 annual meeting it was decided to create a separate Division of Standardization within the Institute in order to carry on a comprehensive and orderly program. In May, 1924, this division was formally organized, with Carl A. Young as director. Additional committees were appointed to consider the standardization of pumping equipment and steel storage tanks, the program by that time embracing 10 main classes of material.

The Division of Standardization became a department of the Division of Production in 1930, with Director Young in charge. Hundreds of standardization committees and subcommittees have worked through the years. Service has been voluntary. Many members of national, state, and local committees have paid their own expenses, conducted innumerable tests, and made investigations, devoting much of their free time to the cause of standardization. Many present committee members and officers have served since standardization work first was begun.

The fundamental purposes of the Institute's standardization program were to obtain uniformity as to proper minimum and maximum chemical and physical properties, interchangeability of material where necessary or desirable, and improved workmanship. Products manufactured in accordance with Institute specifications are identified by the encircled monogram "API." Licenses for use of the monogram are granted to manufacturers whose materials comply with specifications, assuring buyers that the equipment has been manufactured and tested by Institute standards.

The Institute has adopted a complete system of gages and gaging practice. Master gages have been established, at a cost of more than \$1,000,000, for all classes of tubular goods, cable drilling tool joints, rotary drilling taper joints, and sucker rods. There are now more than 21 standard specifications covering virtually all the principal materials used in drilling for and producing oil, including line pipe and steel tanks for oil storage. More than 250 manufacturers have been licensed, including practically all those of the United States and many in Europe.

American Petroleum Institute specifications are printed in handbook size and punched to fit loose-leaf binders. A complete ledger record of all specifications issued to those purchasing the handbook is maintained. New or revised specifications automatically are supplied to each "API Standards Handbook" owner. Headquarters of the Department of Standards is maintained at 1508 Kirby Building, Dallas, Texas.

Results of the Institute's standardization program are impossible accurately of measurement in dollars, although it is known that the value is measurable only in millions. Saving in time alone has been enormous. The standardization of cable drilling tools alone has reduced to a few the hundreds of gages once required. Standardization of rigs and derricks has reduced to 11 the nearly 200 different sizes of derricks once used, and has brought about the adoption of standard dimensions for major rig parts, formerly manufactured in innumerable, and usually non-uniform, sizes.

### **du Pont Company Is ASA Member**

E. I. du Pont de Nemours & Company, Wilmington, Del., has become a member of the American Standards Association. The membership was taken out for the benefit of all the subsidiaries as well as for the company itself.

### **N.E.M.A. Takes Joint Membership in ASA**

The National Electrical Manufacturers Association has taken a group membership in the American Standards Association for the benefit of its members. There are more than 650 companies in N.E.M.A.

Plans are being worked out by means of which certain specific ASA services will be available to N.E.M.A. Members. These will be announced at a later date.

### **Lauds Occupational Insurance Proposal**

While it may not be the only solution to the difficult problem of furnishing workmen's compensation insurance to protect workers exposed to the dangers of dust in the granite and foundry industries, the plan for handling risks involving the prospect of occupational diseases proposed in the report of the Massachusetts Insurance Commission this week has the admirable feature of being a workable one.

Labor interests appear to be unalterably opposed to any change in the workmen's compensation system that does not provide for either increased benefits or a state fund. There is reason to believe that their greatest interest in a state fund comes from the hope that from a politically controlled fund may pour an even greater stream of benefits than those milked from the companies.

### **Plan Provides Standards**

The plan advanced by the commission, after months of investigation and study, provides for no reckless discarding of the present structure. Instead, it protects the worker throughout by checking up on his health before permitting him to expose himself to disease-breeding dusts, provides for his withdrawal, with compensation, from the industry in the event that continued exposure would be unsafe, provides for minimum standards of safety to be maintained by employers, and—what is probably most important—it further protects all workers in those industries by making it possible for even undesirable risks to be insured. And this without placing an undue burden on any one insurer.

Under the plan insurable but undesirable risks would be allocated among all the companies writing workmen's compensation in proportion to the volume, thus, in a way, carrying out the insurance principle of spreading risks.—*The Standard, Boston, Mass., Feb. 10, 1934.*

# Noise Measurement Standards and Definitions Are Developed

***Four Groups of Acoustical Experts Report to Sectional Committee***

***Final Standards on Nomenclature and Method for Measuring Noise are Ready for Letter-Ballot Vote***

by

**J. W. McNair<sup>1</sup>**

*Electrical Engineer,  
American Standards Association.*

Important steps in the development of standards for acoustical measurements and terminology were taken at the meeting of the sectional committee on Acoustical Measurements and Terminology (Z24) held in New York City on May 2.

This is under the sponsorship of the Acoustical Society of America, and the chairman of the committee is Professor Vern O. Knudsen, University of California, president of the Acoustical Society of America. The vice chairman is Dr. Harvey Fletcher, Director of Acoustical Research, Bell Telephone Laboratory, and a widely known expert in the field of sound and hearing. The committee is made up of 47 members and includes a large majority of the outstanding experts in the highly technical and involved field of sound measurement.

Because the committee has representatives of all industries which are actively concerned with noise and sound measurement, it is able to prepare consistent standards from current developments, and through the ASA to have these disseminated for the use of all.

The sectional committee was organized in January, 1932, under the auspices of the ASA and the sponsorship of the Acoustical Society of America as mentioned above. Since that time four sub-

committees have been actively engaged in working on the following projects:

- Noise measurement,
- Acoustical terminology,
- Sound absorption and insulation, and
- Fundamental acoustical measurements.

## ***Noise Measurement Standards***

At the meeting of the sectional committee, held in Chicago in June, 1933, standards for noise measurement were ordered circulated to industry for comment and criticism. They were then printed in INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY (September, 1933), *Electrical Engineering*, and the *Journal of the Acoustical Society of America*, and were widely circulated in mimeographed form. The comments which were received were considered by the subcommittee on Noise Measurement, which recommended that they be circulated to the full sectional committee for final letter ballot on the question of recommendation, through the sponsor, to the ASA for approval as American Tentative Standard. This ballot is now being taken and it is hoped that the standards will soon receive the approval of the ASA and will be available in printed form for use by industry.

These proposed standards comprise certain sound intensity units and scales and other material for use in the measurement of noise. It is expected that these will help to eliminate difficulties which have been experienced in the past by various workers in comparing the results of their measurements.

<sup>1</sup> Secretary, Sectional Committee on Acoustical Measurements and Terminology, Z-24.

**Noise Meters.**—At the Chicago meeting a subcommittee on Noise Meters of the committee on Noise Measurement was set up under the chairmanship of R. G. McCurdy, Noise Prevention Engineer of the American Telephone and Telegraph Company. This committee prepared preliminary draft standards for noise meters which were considered at a recent meeting of the committee on Noise Measurement. It was decided after extended discussion that the draft standards should be referred again to the meter committee for further consideration and study.

The phases of the subject upon which it was decided further work should be done are those under the subject "Frequency Response." In the draft standards which the meter committee presented for comment an average free field response for random incidence was proposed. A method of calibration was specified so as to take account of differences in the directional characteristics of different types of microphones which might be employed with noise meters so that substantial uniformity among them might be achieved in diffused sound fields. It was recognized that different results might be obtained when measuring sounds close to the source if the microphones used had pronounced directional characteristics.

The meter committee will study this matter further, in order to determine what differences among readings of different meters due to different microphone characteristics might be encountered, whether some other type of incidence rather than random should be specified for calibration, or whether it may be necessary to specify the physical dimensions of suitable microphones or to specify permissible variations in response with direction of incidence.

There has been considerable discussion as to a suitable name to be applied to the proposed meter. Names proposed include the following:

Noise Meter  
Noise Level Meter  
Loudness Meter  
Loudness Level Meter  
Sound Meter  
Electrical Ear  
Sound Level Meter  
Noise Loudness Meter  
Acoustimeter  
Phonometer

Any comments on a suitable name for the meter will be welcomed by members of the meter committee.

To give the meter committee the benefit of

## Measuring and Defining Noises

An example of the American Standards Association's policy of having wide representation of all groups concerned in every project is shown in the Sectional Committee on Acoustical Measurements and Terminology (Z24):

Chairman, *V. O. Knudsen*, Acoustical Society of America

Secretary, *J. W. McNair*, ASA

Acoustical Society of America (Sponsor), *Harvey Fletcher*, *H. A. Frederick*, *V. O. Knudsen*, *D. C. Miller*

Acoustical Materials Association, *John S. Parkinson*, *Wallace Waterfall*

American Gas Association, *F. E. Vandaveer*

American Institute of Electrical Engineers, *P. L. Alger*, *C. R. Hanna*, *Bassett Jones*, *B. F. Bailey* (alt.), *Ellsworth D. Cook* (alt.), *H. M. Turner* (alt.)

American Institute of Physics, *Henry A. Barton*  
American Medical Association, *Wendell C. Phillips*  
American Otological Society, Inc., *Edmund P. Fowler*

The American Physical Society, *Henry A. Barton*  
American Society for Testing Materials, *R. E. Hess*  
American Society of Civil Engineers, *S. E. Slocum*  
American Society of Heating and Ventilating Engineers, *Carl Ashley*, *P. D. Close* (alt.)

The American Society of Mechanical Engineers, *E. E. Free*, *R. V. Parsons*, *William Braid White*, *Paul H. Bilhuber* (alt.), *John S. Parkinson* (alt.), *Harry S. Read* (alt.)

American Transit Association, *H. S. Williams*  
Canadian Engineering Standards Association, *George S. Field*

Electric Light and Power Group, *R. N. Conwell*, *J. O'R. Coleman* (alt.)

Institute of Radio Engineers, *Ellsworth D. Cook*, *Irving Wolf*

International City Managers' Ass'n., *E. C. Rutz*  
Music Industries Chamber of Commerce, *Paul H. Bilhuber*

National Association of Fan Manufacturers, *A. A. Criqui*, *J. L. Lennon* (alt.)

National Electrical Manufacturers Association, *L. W. Chubb*, *A. Pinto*, *J. J. Smith*, *R. Ehrenfeld* (alt.), *J. A. Jackson* (alt.), *Glenn Muffy* (alt.)

Radio Manufacturers Ass'n., *C. E. Brigham*  
Society of Automotive Engineers, *R. F. Norris*, *Stephen J. Zand*

Society of Motion Picture Engineers, *Franklin L. Hunt*, *S. K. Wolf*

Telephone Group, *R. G. McCurdy*, *W. H. Martin*, *Arthur Bessey Smith*, *A. F. Rose* (alt.), *R. H. Manson*

U. S. Bureau of Standards, *V. L. Chrisler*  
U. S. Navy Department—Bureau of Engineering, *Officer in Charge of Specification Section, Design Division*

U. S. War Department, *Evan D. Cameron, Jr.*  
Members-At-Large, *F. A. Firestone*, *P. E. Sabine*, *Leopold Stokowski*, *Wallace Waterfall*, *F. R. Watson*

comments on the preliminary standards for noise meters, arrangements have been made for distribution of a limited number of copies to those particularly interested in this subject. They may be had from the ASA office.

**Noise Levels.**—It has been pointed out that a means should be provided for the coordination of recommended noise levels for various industries. It seemed that the meter committee was the proper place for such work and accordingly the official name of the committee has been changed to "Technical Committee on Noise Meters and Noise Levels". In addition to its work on noise meters, the committee will be in a position to advise industry on recommendations concerning noise levels. It is hoped that this work will eliminate confusion in regard to standard noise levels in various industries.

### *Acoustical Terminology*

One of the important difficulties which has caused confusion in the field of sound and noise measurement has been the use of conflicting terminology by different workers. The subcommittee on Terminology has, therefore, been engaged in preparing a list of standard definitions. At the May 2 meeting, the chairman of the Terminology Committee, H. A. Frederick, Transmission Instruments Director of the Bell Telephone Laboratories, reported that his committee had reached agreement on well over 100 terms. After consideration the sectional committee voted to order these terms to letter ballot on the question of submission, through the sponsor, to the ASA for approval as American Tentative Standard. It is hoped that these definitions will soon be available in printed form, with the approval of the ASA, for use by industry.

Mr. Frederick reported that considerable difficulty has been experienced by his committee with musical terms and that for the present it has been decided to drop these terms and to organize a subcommittee on Musical Terminology. Paul Billhuber, Assistant Factory Manager, Steinway and Sons, has been appointed chairman.

### *Sound Insulation and Sound Absorption*

Professor F. R. Watson, University of Illinois, reported that his committee is attempting to secure uniformity in the various data for sound absorption coefficients. In an effort to get uniformity, a single material was prepared and sent to seven different laboratories for tests. The results of these tests were good and there appears to be

reason to hope that a final report may be made in the near future. Professor Watson stated that arrangements have been made whereby an advisory committee composed largely of members of his committee and representatives of the Acoustical Manufacturers Association have taken measurements in one laboratory on various materials used with the idea that such procedure would result in a series of coefficients satisfactory to all. It was pointed out that this committee should not confine itself to measurements on small samples, but should proceed with measurements on acoustical insulating materials in actual use in stores, theaters, offices, and the like. Such work was added to the scope of the committee.

### *Fundamental Sound Measurements*

C. R. Hanna, manager of the Development Division, Westinghouse Electric and Manufacturing Company, chairman, presented a progress report. He stated that his committee is reviewing the material on electro-acoustic devices in the latest standards report of the Institute of Radio Engineers and that he hoped that it would be possible to prepare a final report in the near future.

The next meeting of the sectional committee will probably be held in December.

### *Harrison Heads Industrial Machinery Division*

Robert E. W. Harrison, of Cincinnati, Ohio, has been named chief of the Industrial Machinery Division of the Bureau of Foreign and Domestic Commerce, succeeding W. H. Rastall, who has accepted an executive position with the Capital Goods Section, Division of Research and Planning, National Recovery Administration.

Mr. Harrison has been an executive of Cincinnati Grinders, Inc., and the Cincinnati Milling Machine Company, and in 1932 established himself as a consulting engineer. He is chairman of the Working Committee of the Sectional Committee on Allowances and Tolerances for Cylindrical Parts and Limit Gages (B4) and a member of the Sectional Committee on Classification and Designation of Surface Qualities (B46).

His paper, "A Survey of Surface Quality Standards and a Study of Tolerance Costs," read at the annual meeting of the American Society of Mechanical Engineers in 1930, gave considerable impetus to the starting of the latter project. It was reprinted in *INDUSTRIAL STANDARDIZATION*, Nov., 1931, as was his later paper on "Technique of Size Control in Precision Grinding Operations" (Dec., 1932 and Jan., 1933).

# American Standards Guide Manufacturing and Selling

by

**R. B. Harper<sup>1</sup>**

*Vice-President, The Peoples Gas,  
Light and Coke Company, Chicago.*

**A**ERICAN STANDARDS are those simplified or commercial standards or practices, specifications, safety codes, methods of sampling and testing, symbols, definitions, etc., which have been initiated by various agencies and have finally been developed and accepted by a wide range of interests under the clearing-house method of the American Standards Association.

There are today more than 200 sets of specifications or requirements, codes, methods, etc., identified as American Standard, American Tentative Standard or American Recommended Practice covering a wide range of subjects. These cut across the interest of practically every man, woman, and child in the country.

Take for example eight standards, picked at random: cement, restaurant ranges, safety code for industrial workers, methods for testing textiles, mathematical symbols, specifications for wire and cables, design of girder-grooved rail, and dimensions of bolts and nuts and wrench openings.

Even from this abbreviated list one can see that

American Standards play an important part in determining the safety, comfort, and convenience of our lives through a control not only on the quality and fabrication of the materials of our houses, buildings, bridges, transportation structures, clothing, tools, etc., but also on our practices and operations while we are at work.

Specifications covering the quality of Portland cement ensure strength, and hence safety, of concrete and cement foundations, floors, and other parts of our homes and the bridges and roads over which we travel.

Minimum standards for construction and performance of gas ranges make for safer and more satisfactory use of these appliances; and in lumber camps, mines, foundries, and factories, improved working conditions and more safety are afforded workers because of the numerous safety codes adopted by the American Standards Association.

## ***Ranges Must Pass Tests***

Before a gas range can receive the American Gas Association Laboratory Approved Seal, for example, it must pass each one of more than 160 different tests and must satisfy numerous construction and performance requirements, constituting the American Standard. This measure of protection to the housewife may be had in more

<sup>1</sup> Chairman, ASA Sectional Committee Z21, and American Gas Association Approval Requirements Committee.

**In an address before the recent Home Service Conference of the American Gas Association, the author of this paper defined the meaning of American Standards, as applied in his industry.**

**Mr. Harper answers four questions which, he believes, come to the minds of everyone having anything to do with standardization whether manufacturers, sales people, or consumers. Here are the questions:**

**What are American Standards? Why do we have them?**

**How are they created? How are they used?**

**This abstract of Mr. Harper's address answers these questions.**

than 16,000 models of gas ranges, if she looks for this "badge of approval."

Even the clothes we wear may be subjected to standard test methods to determine wearing qualities, and American Standards for wire and cable protect millions of lives every day in elevators, on bridges, and wherever these products are used. Still other standards tend to reduce our profane vocabularies by making more certain for us the fit of wrenches on the nuts and bolts of our automobiles.

Reasons for initiating American Standards are, of course, numerous. But one of the basic reasons is to develop a common, simple vocabulary, readily understood by everyone. Without standard terms, the manufacturer, distributor, and consumer has no way of determining just what the other means when describing a product. The age-old units of measure, such as feet and inches, pounds and ounces, do not supply the greatly ramified requirements of modern industry.

The need for common language or nomenclature not only concerns the buyer and seller of materials and goods, but also the technicians interested in the various phases of scientific engineering, and industrial pursuits and business, who must use symbols and definitions that have a common and definite meaning to everyone concerned.

### **Standards Curb Waste**

Before standardization, inefficiency and waste were common. National standards have been developed and gradually brought into use as a means to curb waste, to enable companies to operate efficiently, and to eliminate the problem of expensive, high-pressure salesmanship. It was found that the elimination of many types of goods, where fewer could be used, was a source of great savings to manufacturers, distributors, and the ultimate consumer.

The economic urge for a common base in securing truly comparative bids was another strong factor in bringing about standards. Not only have we standards of quality, but we also have standard methods of testing which have ensured an honest measure of quality. The seller and buyer can both use the identical method.

Another reason why we have American Standards is the interdependency of standards and research. Frequently it is important to ascertain fundamental scientific information about materials before an acceptable standard can be written. Research, on the other hand, tends to destroy useless tradition and industrial superstitions and

### **How Standards Serve**

American Standards have been developed because they:

*Insure* against defective materials and unsafe construction and hazardous working conditions;

*Protect* life and property;

*Eliminate* waste and unnecessary types, sizes and varieties;

*Increase* efficiency, save cost and duplication and make replacements possible, thus lowering costs to the ultimate consumer.

These, Mr. Harper says, are some of the reasons why American Standards are of interest to the public and to industry.

plays an important part in making antiquated manufacturing methods obsolete. Thus standards serve to modernize and make efficient and economical the production activities of industry.

Perhaps it is not too much to say, then, that we now have American Standards because they have become essential threads of our social fabric.

### **How They Are Created**

Although there are several methods which may be followed in developing American Standards, in the final stage they must all be indorsed by the Standards Council of the American Standards Association.

Standards may be initiated by some one or more national technical or trade bodies or by some other group of interested persons. Thus the role of the American Standards Association is not only that of an "association of associations," but may also be defined as a co-ordinated movement in which industrial, technical, and governmental bodies are broadening and unifying their standardization into a consistent system of national standards.

### **Gilbert & Barker Is ASA Member**

Gilbert & Barker Manufacturing Company has taken a membership in the American Standards Association. The company manufactures oil burners, gasoline pumps, domestic and industrial oil heating equipment, automatic hot water heaters, storage tanks, range burners, and oil handling machinery.

## Pipe Standards, Just Approved, Mark Progress in Technology

**T**HE American Standards Association recently approved nine standards for wrought-iron and steel pipe. Two of these have been approved as American Standards, and seven have been approved as American Tentative Standards.

This culminates more than seven years of intensive research and committee work by scores of the foremost experts in the field, and marks an important milestone in the progress of pipe technology.

Fortunately, the sectional committee (B36) found it possible to use many of the existing wall thicknesses—such as standard weight, extra-strong, and double-extra-strong—and thus avoided commercial objections which would have resulted had manufacturing equipment now in use been rendered obsolete. Existing weights generally coincided with the new proposed thicknesses, thus making it possible for the committee to arrive at substantial agreement—an important factor in writing American Standards.

All industries will be able to use these standards, and the new schedules will eliminate many of the little-used intervening weights of pipe. This alone is one of the most valuable effects of standardization.

Leadership in the work on this group of pipe standards was taken by the American Society for Testing Materials, co-sponsor with the American Society of Mechanical Engineers. The actual drafting of these specifications was largely done by committees of the A.S.T.M.

A large number of trade associations participated generously in the work. Among these were the Manufacturers' Standardization Society of the Valve and Fittings Industry, the Association of American Steel Manufacturers Technical Committees, the Heating and Piping Contractors National Association, the Power Piping Society, the American Petroleum Institute, the American Gas Association, the American Railway Association, the American Waterworks Association, and sev-

***After Seven Years of Work, Committee Votes To Adopt Two as American Standards and Seven as Tentative; Work Will Continue***

eral governmental departments. Their contribution included both the technical work involved and their efforts in applying these standards to industry.

Piping standardization projects can be divided into three broad phases:

- (a). Dimensional standards,
- (b). Material specifications, and
- (c). Safety codes.

The first two are mutually independent. The one could not exist without the other being implied, at least. Safety codes depend entirely upon the first two.

This relationship is clearly shown in the case of these standards just approved by the ASA. These standards, which cover materials, dimensions, and test requirements for all classes of wrought-iron and wrought-steel pipe and tubing, have been used as the basis of the proposed American Standard Safety Code for Pressure Piping. The proposed Code specifies pipe made in accordance with these standards for use in power plants, gas and air piping systems, oil piping and district heating systems.

### ***Seeks to Eliminate Duplications***

The ultimate aim of the sectional committee which developed the newly approved standards, authorized in March, 1927, was to co-ordinate and standardize specifications for pipe with a view to reducing unnecessary duplication in the design, dimensions, and material requirements of

all classes of wrought-iron and wrought-steel pipe and tubing. The classes of pipe affected by the work of the committee include seamless pipe and tubing; lap and butt furnace welded pipe; hammer, fusion, and resistance welded pipe; and all types of riveted or other fabricated pipe made of wrought iron or wrought steel. These types of pipe are all suitable for use in power piping systems; gas and air piping; oil piping; and district heating systems.

### Approved Standards Are Analyzed

An analysis of the individual standards has been made and a brief resumé is presented below. The standards cover outside diameters, wall thicknesses, tolerances, and materials for several schedules of 1000 P/S values, ranging from 10 to 160.

Standard Specifications for Welded and Seamless Steel Pipe (B36.1-1934) cover standard weight, extra-strong, and double-extra-strong pipe, suitable for coiling, bending, flanging, etc. The Code for Pressure Piping allows the use of pipe as specified by this standard in power piping systems for pressures not in excess of 250 lb per sq in. at 500 F; as well as in gas and air piping systems, district heating systems, and for oil piping.

Standard Specifications for Welded Wrought-Iron Pipe (B36.2-1934) cover standard weight, extra-strong, and double-extra-strong pipe suitable for coiling, bending, flanging, etc. The Code for Pressure Piping allows the use of this pipe in power piping systems from 250 lb per sq in. to 400 lb per sq in.; as well as in gas and air piping systems; district steam heating; and for oil piping.

Tentative Specifications for Lap-Welded and Seamless Steel Pipe for High-Temperature Service (B36.3-1934) are for pipe for 250, 300, 400, 600, 900, and 1500 lb per sq in. at high temperatures, suitable for bending, flanging, and similar services. Supplementary requirements of an optional nature are provided for seamless pipe intended for use in central stations having steam service pressures of 400 lb per sq in. or over and temperatures up to 750 F, or for other applications where a superior grade of pipe is required. The Code allows use of this pipe in power piping systems with pressures above 250 lb per sq in.; in oil piping systems; and district heating systems.

Tentative Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 30 In. and Over) (B36.4-1934) are for pipe with wall thicknesses up to  $\frac{3}{4}$  in.

Tentative Specifications for Electric-Resistance-Welded Steel Pipe (B36.5-1934) cover two grades of pipe up to and including 30 in. diameter for conveying liquids, gas, or vapors at temperatures below 450 F and is adapted for flanging and bending in smaller sizes. The Code allows the use of this pipe in power piping systems of from 250 to 400 lb per sq in., and in gas and air piping systems, and district heating systems.

Tentative Specifications for Forge-Welded Steel Pipe (B36.6-1934) covers two grades of pipe in sizes from 14 in. to and including 96 in. diameter, and wall thicknesses from  $\frac{1}{4}$  in. to  $1\frac{1}{4}$  in. inclusive. The pipe is intended for various uses. The Code allows its use in power piping systems, gas and air piping systems, and district heating systems.

Tentative Specifications for Lock-Bar Steel Pipe (B36.7-1934) is for pipe suitable for liquids or gases. This pipe is made from steel plates rolled or formed into a circle, having longitudinal edges planed and upset to a dovetail form which engages in the grooves of an H-shape steel lock bar to form the longitudinal joint of the pipe. The Code allows its use in gas and air piping systems.

### Pipe Experts Working On American Standards

Chairman, *Harold H. Morgan*, American Society for Testing Materials.

Secretary, *Sabin Crocker*, National District Heating Association.

American Society of Mechanical Engineers (Sponsor), *Herman C. Heaton*, *Arthur M. Houser*; *David S. Jacobus*, *Frank S. Clark*, (alt.); *Henry B. Oatley*

American Society for Testing Materials (Sponsor), *H. W. Maack*, *Harold H. Morgan*, *Frank N. Speller*, *George H. Woodroffe*

American Boiler Manufacturers Association and Affiliated Industries, *H. H. Murray*, *W. W. Eaton* (alt.)

American Bureau of Shipping, *Jacob Bergvall*  
American Gas Association, *R. C. Cornish*, *S. C. Preston*

American Institute of Refrigeration  
American Marine Standards Commission, *Henry C. E. Meyer*

American Petroleum Institute, *F. C. Fyke*, *Leslie D. Burritt* (alt.); *Thomas Henry*

American Railway Association—Engineering Division—Construction and Maintenance Section—Water Service, Fire Protection and Sanitation Committee, *J. J. Laudig*, *W. B. Nissly* (alt.)

American Railway Association, Mechanical Division, *F. M. Waring*

American Water Works Ass'n., *Frank N. Speller*  
Association of American Steel Manufacturers Technical Committees, *L. B. Grindlay*, *E. F. Kenney*, *G. A. Reinhardt*, *Jesse J. Shuman*  
Electric Light and Power Group, *Abbott L. Penniman*, *A. B. Morgan* (alt.)

Federal Specifications Board, *I. J. Fairchild*  
Heating, Piping and Air Conditioning Contractors National Ass'n., *W. R. Rhoton*, *Joseph C. Fitts*

Manufacturers Standardization Society of the Valve and Fittings Industry, *F. Hugh Morehead*  
National District Heating Ass'n., *Sabin Crocker*

National Electrical Manufacturers Association, *H. C. Hodgkinson*

National Pipe and Supplies Association, *R. Kennedy Hanson*

New England Water Works Ass'n., *C. W. Mowry*  
Pittsburgh Testing Laboratory, *A. R. Ellis*

Power Piping Society, *J. Roy Tanner*, *H. LeR. Whitney*

Refrigerating Machinery Association, *Waldemar R. Kremer*, *Alvin H. Baer* (alt.)

Society of Naval Architects and Marine Engineers, *V. B. Edwards*

U. S. Department of Commerce—Bureau of Navigation and Steamboat Inspection, *Dickerson N. Hoover*, *James W. Wilson*

U. S. Navy Department, Bureau of Construction and Repair

U. S. Navy Department, Bureau of Engineering, Design Division, *Officer in Charge of Specification Section*

U. S. War Department, *Executive Officer*  
Members-at-Large, *James B. Aston*, *Albert E. White*

Tentative Specifications for Riveted Steel and Wrought-Iron Pipe (B36.8-1934) covers shop-fabricated straight pipe, suitable for conveying liquids or gases. It is made from steel or wrought-iron plates with riveted seams. The Code allows its use in power-piping systems, gas and air piping systems, and district heating systems.

Tentative Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 8 in. to but not including 30 in.)

(B36.9-1934) are for two grades of pipe in sizes from 8 in. to but not including 30 in. in diameter, and with wall thicknesses up to  $\frac{5}{8}$  in. inclusive. This pipe is intended for conveying liquid, gas, or vapor at temperatures below 450 F and is adapted for flanging and bending. The Code allows its use in power piping systems from 250 to 400 lb per sq in., and in gas and air piping systems.

### **Pipe Standards Mark Progress**

Nine standards for wrought iron and steel pipe, the first submitted to the American Standards Association for approval since the sectional committee on Dimensions and Materials of Wrought Iron and Wrought Steel Pipe and Tubing (B36) started its work, have been approved by the ASA.

#### ***American Standards***

Standard Specifications for Welded and Seamless Steel Pipe (B36.1-1934) (A.S.T.M. A53-33).

Standard Specifications for Welded Wrought-Iron Pipe (B36.2-1934) (A.S.T.M. A72-33).

#### ***American Tentative Standards***

Tentative Specifications for Lap-Welded and Seamless Steel Pipe for High-Temper-

ature Service (B36.3-1934) (A.S.T.M. A106-33T).

Tentative Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 30 in. and Over) (B36.4-1934) (A.S.T.M. A134-32T).

Tentative Specifications for Electric-Resistance-Welded Steel Pipe (B36.5-1934) (A135-32T).

Tentative Specifications for Forge-Welded Steel Pipe (B36.6-1934) (A.S.T.M. A136-32T).

Tentative Specifications for Lock-Bar Steel Pipe (B36.7-1934) (A.S.T.M. A137-32T).

Tentative Specifications for Riveted Steel and Wrought-Iron Pipe (B36.8-1934) (A.S.T.M. A138-32T).

Tentative Specifications for Electric-Fusion-Welded Steel Pipe (Sizes 8 in. to but not including 30 in.) (B36.9-1934) (A.S.T.M. A139-32T).

Copies are available from the ASA office at 25 cents each.

### **Aids to Consumer Buying Published**

Two new booklets which will help the individual buyer to know whether she is getting the quality and service she wants when she buys food, clothing, and household equipment are now available. They were published by the U. S. Department of Agriculture, and can be purchased from the Government Printing Office, Washington, D. C., or from the ASA office at five cents each.

"Present Guides for Household Buying" lists and explains the standards and grade markings now being used for consumer goods. Food products, food containers, clothing and textiles, household equipment and furnishings, drycleaning and laundering, cement, coal, drugs are some of the subjects for which standards are available.

The Federal or national standardizing agencies which are working on standards for consumer goods are listed and described.

### ***Quality Guides for Sheets and Pillowcases***

A clearly stated explanation of how the individual purchaser may know whether the sheet she is buying will give satisfactory service and wear is contained in the second leaflet "Quality Guides in Buying Sheets and Pillowcases." The length and width of the sheet, weight, sizing, reasonable life, the length of fibers, thread count, tensile strength, and flaws are some of the subjects which are carefully considered and presented. Methods of judging the quality and serviceability of sheets and pillowcases, and the meaning of the terms used in labeling, are clearly explained.

Miss Ruth O'Brien, chief of the Division of Textiles and Clothing of the Bureau of Home Economics, is author of "Quality Guides in Buying Sheets and Pillowcases" and co-author of "Present Guides for Household Buying." Miss Medora M. Ward, assistant economist, Economics Division, Bureau of Home Economics, is co-author with Miss O'Brien of the latter publication.

# New Code Seeks to Lessen Hazards of Perilous Window Cleaning Work

***Specifications for Equipment, Recommendations for Workers, Written Into Safety Code***

***Lower Insurance Rates May Be Expected If Employers Adopt Code, Recently Approved by ASA***

Perched perilously hundreds of feet above the street level—and sudden death in case of a misstep, a broken belt, or a weak window-sill anchor—thousands of window washers are now given security by the Window Cleaning Safety Code, recently approved by the American Standards Association.

The code was designed to be used by window washing concerns, manufacturers of equipment used for this purpose, building owners and managers, and to guide state and municipal authorities in writing regulations.

Generally conceded to be one of the most hazardous of occupations, hundreds of window washers are killed or injured yearly in the United States. Insurance rates for window washers are among the highest of any industrial group. Rates range from \$2.00 per \$100.00 pay-roll in Washington, to \$19.88 in Nebraska and a minimum of \$305.00 per man in New York.

## ***Equipment Found Defective***

Although only incomplete reporting of accidents and their causes are available, the Code Committee found that a great deal of evidence pointed to defective equipment used by the window washers in their work. Standards for safety belts, swinging scaffolds, boatswain's chairs, portable and sectional ladders, and anchors fastened to window-sills to which belts are hooked, were written by the committee.

Reports showed that hundreds of buildings were not provided with anchors or other fastenings for the men to use. Some of the newer skyscrapers were designed with no attention given to this type of equipment. To achieve certain design effects in the finished building, many architects eliminated the usual ledge at the window. Several recommendations covering these points are included in the Code.

## ***For Safety In Mid-Air***

Experts on Safety matters developed the Window Cleaning Code, recently approved by the American Standards Association. The committee included:

*G. F. Collins*, National Association of Building Owners and Managers, *Chairman*.

*G. E. Burns*, National Safety Council (Sponsor), *Secretary*.

American Society of Mechanical Engineers, *W. G. Boyle*

Beacon Safety Device Company, *A. E. Millies*  
Building Trades Employers' Association, *W. G. Wheeler*

International Association of Industrial Accident Boards and Commissions, *T. C. Eipper, H. D. Willis (alt.)*; *C. A. Pense*

National Association of Building Owners and Managers, *P. E. Halcombe*

National Bureau of Casualty and Surety Underwriters, *W. S. Paine, A. O. Jackson (alt.)*

National Safety Appliances Corporation, *J. L. Malcolm*

H. H. Robertson Company, *W. E. Megraw*

Underwriters' Laboratories, *S. V. James*

U. S. Bureau of Standards, *G. J. Stevens*

U. S. Department of Labor, *J. McKay*

World Window Cleaning Company, *G. F. Minnis*

Some windows have been so constructed as to make cleaning extremely hazardous. Heavy windows make opening difficult and washers have lost their balance when working with them. Others, designed with only a small opening section, require the washer to step out over the stationary portion and around the open section, tak-

ing the chance of being knocked off should the window swing suddenly. Obviously, no safety code can prevent accidents caused by faulty design, and the committee hopes architects and builders will take cognizance of this code in their plans.

### ***Negligence Important Factor***

As in all industrial occupations, the negligence of the worker plays an important part in window-washing hazards. This safety code calls attention to this fact and calls upon the employees to exercise caution.

Because the compensation insurance rate depends directly upon the accident record of the individual building, the financial advantage of

reduced accidents is of utmost importance to building managers. Building maintenance involves no major accident risk except window washing. It has been demonstrated frequently that safety codes, if used by employers, have a marked effect in lowering insurance costs by decreasing the accident hazard.

The code was developed under the auspices of the ASA, with the National Safety Council as sponsor. The committee in charge of the work included safety engineers, employers, state and government officials, insurance representatives, and manufacturers of window-washing equipment.

Copies of the Code are available from the American Standards Association, or the National Safety Council, for 20 cents.

## **Recovery Capacity of All Approved Gas Water Heaters To Be Increased**

The recovery capacity or output of a water heater is a function of its input rating and efficiency. For storage and circulating tank gas water heaters, this is usually specified in gallons per hour. On account of the higher input ratings and greater capacity of multicoil and instantaneous type heaters, however, their recovery capacities are generally given in gallons per minute. Under the current water heater specifications which became effective September 1, 1931, the recovery capacity of gas water heaters is defined as follows: amount of water in U. S. or Imperial gallons raised 60 degrees Fahrenheit per hour or per minute when calculated on a thermal efficiency of 65 per cent, representing the water heated by a gas input of 770 Btu per U. S. gallon or 924.3 per Imperial gallon.

### ***Must Show Capacity***

The current requirements also specify that the recovery capacity must be shown on the name plate of every approved heater.

Recovery capacities for all approved gas water heaters, based upon the above definition, are shown in the A.G.A. List of Approved Gas Appliances.

The new American Standard Approval Requirements for Gas Water Heaters<sup>1</sup> which become effective July 1, 1934, specify that the recovery capacity of water heaters shall be based on a thermal efficiency of 70 per cent, the revised definition reading as follows: "The amount of water in U. S. or Imperial gallons raised 60

degrees Fahrenheit per hour or per minute when calculated on a thermal efficiency of 70 per cent, representing the water heated by a gas input of 715 Btu per U. S. gallon or 858.2 per Imperial gallon."

Furthermore, the name plate on circulating tank gas water heaters need not show the recovery capacity under the new standards effective July 1st.

In view of the above revisions in the water heater requirements, manufacturers of approved appliances of this type should show the revised recovery capacities on their water heater on and after July 1, 1934. Until that time, however, the recovery capacities shown on name plates should remain as at present.

The July 1, 1934, List of Approved Gas Appliances will show the revised recovery capacities of all approved water heaters based upon the new definition.

If further information is desired concerning this matter, communications should be addressed to R. M. Conner, Director, A.G.A. Testing Laboratory, 1032 East 62nd Street, Cleveland.—*American Gas Association Monthly*, April, 1934.

### **Wright Aeronautical Is ASA Member**

The Wright Aeronautical Corporation, Paterson, N. J., has become a Company Member of the American Standards Association. Through its membership the company is entitled to all the services of the ASA, including discounts on published standards, free copies of *INDUSTRIAL STANDARDIZATION* and *COMMERCIAL STANDARDS MONTHLY*, and research service furnished by the ASA Library.

<sup>1</sup> Z21.10-1933.

## Progress Is Shown in Ferrous Metallurgical Standards Work

The status of all projects on ferrous metallurgy under the procedure of the American Standards Association is presented in the following review.

This report is compiled from the files of the American Standards Association and is up to date as of March 1, 1934.

### G8—Specifications for Zinc Coating of Iron and Steel

*Sponsor*—American Society for Testing Materials.

Work on this project was initiated several years ago as a result of a more or less general demand for the development of comprehensive specifications for zinc coating of iron and steel. From its inception activities of this sectional committee have been closely correlated with research and standardization programs of all groups actively engaged in this field, such as the American Society for Testing Materials, the telephone system, the electric light and power group, etc.

Progress in this committee is given below under the heading of the several subprojects through which the work of the committee has been conducted.

*G8a—Technical Committee I—Hardware and Fastenings.* During the past year Specifications for Zinc Coating (Hot-Dip) on Hardware and Fastenings was published by the sponsor as a tentative standard, following recommendations from the sectional committee.

*G8b—Technical Committee II—Sheets and Sheet Products.* Although consideration of a possible revision of Specifications for Zinc Coated Galvanized Sheets—G8b1-1931 (A.S.T.M. A93-27) has been under consideration for some time, no action was taken during the past year.

*G8c—Technical Committee III—Structural Steel Shapes, Plates, Bars, and Their Products.* Subsequent to the completion, in 1932, of an investigation of the embrittlement of structural steel

### *Research Marks Development in Zinc Coating of Iron and Steel*

### *Revision of Standards for Structural Steel Shapes, Plates, Bars, and Products Approved*

in the galvanizing process, which was performed at the Battelle Memorial Institute under the direction of committees of the American Society for Testing Materials and certain public utilities, Technical Committee C recommended certain minor changes in the standard covering zinc coating for structural steel shapes, etc. Recommendations from the Technical Committee which were concurred in by several A.S.T.M. groups regarding these revisions, were accepted by the sectional committee. The sponsor submitted the revised document in August 1933 and approval as American Standard followed in September. The title and designation of this standard is as follows: Specifications for Zinc (Hot-Galvanized) Coatings on Structural Steel Shapes, Plates and Bars and Their Products—G8.1-1933 (A.S.T.M. A123-33).

*G8d—Technical Committee IV—Pipe Conduits and Their Fittings.* Questions raised in 1932 with reference to A.S.T.M. A120 covering specifications for zinc-coated welded and seamless steel pipe are still under consideration by subcommittees of A.S.T.M. Committee A-1 on Steel and Technical Committee IV. Mr. C. J. Krieger, who served as chairman of this technical committee for several years, resigned in September, 1933 and his successor has not been appointed.

*G8e—Technical Committee V—Wire and Wire Products.* Close cooperation of the activities of Subcommittee VI of A.S.T.M. Committee A-5 on Corrosion of Iron and Steel and those of Techni-

cal Committee V is being maintained but as yet the technical committee has made no definite recommendations for action by the sectional committee on several A.S.T.M. standards and tentative standards covering zinc coated wire and wire products.

**G8g—Technical Committee VII—Methods of Testing.** This group, which also functions as Subcommittee VII of A.S.T.M. Committee A-5 on Corrosion of Iron and Steel, is engaged upon a study of data obtained from further experiments on the subject of industrial atmosphere tests. A report covering further research into the effectiveness of the Preece test is in preparation. In 1933 the Society adopted a revision of its Standard Methods of Determining Weight of Coating on Zinc Coated Articles—A.S.T.M. A90-33.

**G9—Specifications for Carbon-Steel and Alloy-Steel Blooms, Billets, and Slabs for Forgings**

*Sponsor*—American Society for Testing Materials.

These specifications, originally approved as

American Tentative Standard in 1924, were revised by the Society in 1929 and submitted for approval under the proprietary method. In 1933 the A.S.T.M. recanvassed its Committee A-1 on Steel and the results of this letter ballot were transmitted to the ASA. Approval as American Standard was given in September 1933 and the Society was granted proprietary sponsorship to care for future revisions of these specifications. The A.S.T.M. designation is A 17-29.

**G12-1931—Specifications for Refined Wrought-Iron Bars**

**G13-1931—Specifications for Wrought-Iron Plates**

*Sponsor*—American Society for Testing Materials.

No revisions are under way on these two standards, which were approved as American Tentative Standard in 1931, following the submittal under the proprietary method. The A.S.T.M. designations are respectively A 41-30 and A 42-30.

## Fifteen Non-Ferrous Projects Are Reviewed in Report

The following review of all the projects on non-ferrous metallurgy under the procedure of the American Standards Association presents an up-to-date summary of the status of these projects. The information was taken from the files of the American Standards Association and is correct to March 1, 1934.

**H1—Zinc and Zinc Ores**

*Sponsor*—American Society for Testing Materials.

The development of standards under the scope of this project has been deferred until industrial requirements become more definite.

**H4-1928—Specifications for Soft or Annealed Copper Wire**

**H14-1929—Specifications for Hard-Drawn Copper Wire**

**H15—Specifications for Medium Hard-Drawn Copper Wire**

**H16-1928—Specifications for Tinned Soft or Annealed Copper Wire for Rubber Insulation**

*Sponsor*—American Society for Testing Materials.

The four projects listed above are under the supervision of a single sectional committee, which is identical in personnel with A.S.T.M. Committee B-1 on Copper Wire. Standards for three of these projects were approved in 1928 and 1929 as follows: H4-1928 (A.S.T.M. B 3-27), H14-1929 (A.S.T.M. B 1-27) and H16-1928 (A.S.T.M. B 33-21). A.S.T.M. Specifications for Medium Hard-Drawn Copper Wire (A.S.T.M. B 2-27) are under consideration by the sectional committee as project H15. Specifications for Tinned Soft or Annealed Copper Wire for Rubber Insulation—H16-1928 (A.S.T.M. B 33-21) and Specifications for Soft or Annealed Copper Wire—H4-1928 (A.S.T.M. B 3-27) have been used as the basic wire standards by the sectional committee for

project C8 and have also been published as C8b1-1928 and C8b2-1928, respectively.

#### H7-1925—Specifications for Brass Forging Rod

*Sponsor*—American Society for Testing Materials.

No revisions are under way on this standard (A.S.T.M. B 15-18) which was approved as American Tentative Standard in 1925.

#### H8—Specifications for Free-Cutting Brass Rods for Use in Screw Machines

*Sponsor*—American Society for Testing Materials.

Action on A.S.T.M. B 16-29, submitted by the Society as a revision of an earlier document and approved by ASA in 1925, has been deferred pending the receipt of further information from the A.S.T.M.

#### H11-1924—Specifications for Solder Metal

*Sponsor*—American Society for Testing Materials.

Submitted as an existing standard and approved by ASA in 1924 as an American Tentative Standard, these specifications (A.S.T.M. B 32-21) have been unchanged since their adoption.

#### H13-1925—Outside Dimensions of Plumbago Crucibles for Non-Tilting Furnaces in Non-Ferrous Foundry Practice

*Sponsors*—American Foundrymen's Association; Plumbago Crucible Association.

No revisions have been made in this standard, which was developed by the Plumbago Crucible

Association and approved as American Tentative Standard in 1925.

#### H17—Specifications for Ingot Copper

Two A.S.T.M. standards, submitted in 1929 under the proprietary sponsorship method, were approved in 1932. The titles and designations are as follows:

H17.1-1932—Specifications for Lake Copper Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars (A.S.T.M. B 4-27)

H17.2-1932—Specifications for Electrolytic Copper Wire Bars, Cakes, Slabs, Billets, Ingots, and Ingot Bars (A.S.T.M. B 5-27)

#### H19—Specifications for Sheet High Brass

Pending consideration by the A.S.T.M. of certain revisions proposed in 1932 by A.S.T.M. B-5 on Copper and Copper Alloys, action by the ASA has been withheld.

#### H20—Specifications for Manganese Bronze Sand Castings

#### H21—Specifications for Manganese Bronze Ingots for Sand Castings

At the request of the A.S.T.M. the ASA has withheld consideration of these two specifications (A.S.T.M. B 54-27 and B 7-27) until action with regards to possible changes in certain sections of this document, now under consideration in A.S.T.M. Committee B-5 on Copper and Copper Alloys, has been completed.

### A.S.T.M. Annual Meeting At Atlantic City, June 25-29

The American Society for Testing Materials will hold its 37th Annual Meeting at Chalfonte-Haddon Hall, Atlantic City, June 25-29. Although the program has not been completed, several symposiums on such subjects as magnetic analysis, light alloys, subgrade soils, and tinting strength of pigments are in prospect.

One session may be devoted to a discussion on "Presentation of Data." The customary Edgar Marburg lecture will be delivered this year by

Dr. Sheppard T. Powell, Consulting Mechanical Engineer, associated with Johns Hopkins University, on water as an engineering and industrial material.

As is usual, many committees in the various fields of activity of the Society will hold meetings, and action on a number of standards is expected. As this issue of INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY goes to press, a definite program is not available but copies may be obtained from the A.S.T.M. headquarters or from the ASA.

## Standards for Silk Weighting Asked by NRA Consumer Board

*Revision Hearing, With Ultimate Consumers Represented,  
Is Recommended; Use of ASA, Standards Bureau, is Urged*

The Consumers' Advisory Board of the NRA in a recent report recommended that the silk textile industry take immediate steps to correct certain alleged abuses in manufacture and sale of silks, by developing grades, labels, and "content specifying terms." The industry is working under a code of fair competition.

The report charges that the present practice of designating quality of silk goods tends to mislead customers, complicate sales, and in many cases "to underwrite the 'chiseling' manufacturer and salesman."

Clear-cut and meaningful quality identifying terms, indelibly shown in labels, would make fair trade possible. The Board maintains that consumers must be protected from unfair competition if the recovery program is to succeed. In making the recommendations in regard to grading and labeling, then, the consumer's group expressed its interest "in protecting the ultimate consumer as well as all buyers." This must be done throughout the process of manufacture of merchandise, the report says, to assure this protection.

Adoption of the recommendation, the board believes, would materially aid the silk industry and promote the purpose of the National Recovery Act.

### **Consumer Unskilled as Buyer**

Without standard terms (or nomenclature) and proper identifying or descriptive labels, the buyer is placed at the mercy of the seller, the Advisory Board reported. Because the ultimate consumer is far less skilled in purchasing than the professional agent, and less informed by relevant facts, he requires quality grading and informative labels much more than expert buyers.

Silks weighted with mineral salts are less durable than unweighted silk, although there is some difference of technical opinion as to the relative

### **Labeling is Suggested as Aid To Silk Mills & Users Alike**

Weighting silks with tin or lead salts is an accepted practice in the silk trade. The Consumers' Advisory Board, in this report, points out that both the manufacturers and ultimate consumers would benefit from a program of developing grades, labels and content-specifying terms.

This study is one of the first major surveys undertaken by the Board, organized to protect the interests of the ultimate consumer under the Blue Eagle, and is published in brief here to throw more light upon consumer standards, a topic of increasing interest to industry.

durability of silks of different degrees of weighting. The only curb against weighting or misinterpretation is said to be the Federal Trade Commission's ruling. Because labeling is not mandatory, under this rule, it is held to be entirely inadequate.

Because 80 per cent of silk goods are made up into dresses, garments, etc., by garment manufacturers, the board believes that any labeling plan must begin with statements of quality imprinted on the selvage of the silk. Statements as to quality should then be repeated in labels sewn into the finished garment.

Facts and opinions on weighted silks and fabric identification were correlated by the Consumers' Advisory Board and included in the report. Of 50 "silk" dresses bought in New York, only three contained no mineral weighting, 44 contained more than 50 per cent weighting and one was

actually 100 per cent rayon.<sup>1</sup> Another analysis of 66 samples of silk yard goods purchased by women college students in several cities and towns showed 20 samples to be pure dye silk and 46 to have metallic weighting of from 31 to 60 per cent. The highest priced fabric in this group cost \$3.98 per yard, and contained 53 per cent weighting. Several of the fabrics costing less than \$2.00 contained no weighting.

Following its report citing scores of analyses and research projects on the subject of silk weighting and silk merchandising, the Consumers' Advisory Board made the following recommendations:

1. The Consumers' Advisory Board should go on record immediately in favor of a revision of the Silk Textile Code with a view to incorporation of a clause calling for standards dealing with silk weighting, fabric identification, color fastness, and quality identifying labeling.

2. The Board should ask Dr. Pauline Beery Mack to act as its representative at this revision hearing.

3. At the code hearing, the American Home Economics Association, the General Federation of Women's Clubs, and any other consumer organization should be given a chance to appear and speak.

4. In drafting standards, there must be consumer and governmental representation. The consumer representative must meet with the approval of the Consumers' Advisory Board, and no standards shall be promulgated over the vote of either the consumer or the governmental representative.

5. The study group should be set up immediately after the code has been revised, and the standards promulgated should become effective not less than six months after the effective date of the code revision. These should then become mandatory on the industry.

6. The standards, grading and labeling system established should be such as can be understood readily by the ultimate consumer. Labels should be marked on, or sewn

<sup>1</sup>In this report the percentage of weighting is calculated on the weight of the finished fabric; i.e., the finished piece of silk with its weighting, as received by the customer, equals 100 per cent.

## Home Economists Cite Unfair Competition

Metallic weighting added to silk deceives the customer because (a), he believes he is getting more silk than really is the case, and (b), because weighting causes silk to deteriorate rapidly.

There is a demand for less expensive and less durable silk, and the demand for weighted fabrics would continue in spite of truthful labeling.

Pure silk (pure dye silk) is more expensive to produce than weighted silks, because raw silk is more expensive than the tin and lead salts which are used in weighting fabrics.

Hence, unless silks are properly labeled, competition between weighted and unweighted products is unfair.

—Excerpts from a memorandum on the Code of Fair Competition for the Silk Textile Industry prepared by the American Home Economics Association, October, 1933.

into, every piece of goods sold, and shall not be removed until sold to the ultimate consumer. It should be an unfair trade practice to label incorrectly, to fail to label, or to remove the label before sale.

7. At the earliest opportunity the standards should be submitted for approval through the machinery of the American Standards Association, the U. S. Bureau of Standards, or any other body which will, in this specific case, guarantee both consumer and governmental representation.

## Says Specifications Are Vital to Industrial Growth

Discussing standard specifications, *Chemical Age*, London (March 24, 1934), says in part:

"The trend of industry is in the direction of higher efficiency, and where a material fails to conform to what is found to be necessary to maintain that efficiency, it should not be allowed to be used because certain manufacturers have fallen behind the times, or because their raw material is not good enough for the manufacture of goods of the necessary quality.

"Ordinary commercial competition will, in time, compel the out-of-date manufacturers

to modernize their equipment, or to find other markets wherein the lower quality of their goods may find an outlet.

"It is false economy to allow such factories to continue to supply markets for which they have ceased to become eligible. The adoption of this principle in turn places a severe onus of responsibility on the specification committee.

"There must be very definite knowledge concerning which properties are essential in the goods under consideration in order that no injustice shall be done. Having in mind the losses that may be caused through using unsuitable material, it is evident that the work of specification committees is of vital importance to industry."

## Work on Cotton Shrinkage and Other Textile Standards Is Progressing

The status of standardization projects on textiles, under the procedure of the American Standards Association, is reported herewith.

These reports are up to date as of May 1, 1934.

### L3-1931—Specifications for Cotton Rubber-Lined Fire Hose for Public and Private Fire Department Use

*Sponsors*—American Society for Testing Materials; Fire Protection Group.

No changes have been proposed for this document, which was approved as American Standard in 1931. The A.S.T.M. designation is D296-31 T.

### L4—Specifications and Standards for Sheets and Sheeting

*Autonomous Sectional Committee*

The status of this project as given on page 85 of INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY, May, 1933, has been unchanged during the past year.

### L5-1931—General Methods of Testing Woven Textile Fabrics

*Sponsor*—American Society for Testing Materials.

This inclusive general standard covering generally accepted tests for practically all types of woven textile fabrics was approved as an American Standard in 1931, as a revision of an earlier standard. The A.S.T.M. designation is D38-27. Additional tests covering the tear resistance of fabrics and shrinkage of woven cottons, published by the Society as tentative, may be incorporated in the standard during the next few months.

### L6—Specifications for Blankets

The ASA project on specifications for blankets, commenced at the request of the American Home Economics Association, has been held in abeyance for some time. During 1933 the supplement

of the Commercial Standard for Wool and Part Wool Blankets (CS39-32) was accepted by the industry. The supplement contains provisions which record the desire of the industry to control certain features of advertising and labeling for wool blankets. These provisions are somewhat of a departure from those contained in the usual commercial standard whose limits generally pertain only to specifications for the commodity itself or the wording of the guarantee label.

### L8—Hosiery Lengths

During the fall of 1931 a general conference, held in Philadelphia, voted to submit a Proposed Commercial Standard for Hosiery Lengths to the ASA for approval as American Standard, provided the document was subsequently accepted by the industry and promulgated by the Bureau of Standards. In accordance with this action the Bureau, on behalf of the conference, submitted CS46-33 to the ASA in April, 1933. Following the submittal further consideration indicated that the certain sections of the commercial standard covering the lengths of women's full-fashioned hosiery, which provided for only a single length of women's hose, were not acceptable to certain consumer organizations. The American Home Economics Association, following a canvass and full consideration, objected to the approval of the commercial standard by ASA and accordingly the Board of Examination has recently recommended that the commercial standard be returned to the Bureau of Standards for further consideration by the Standing Committee and by all interested parties. Further developments in specifications for women's hosiery are, however, underway. In January, 1934, the General Federation of Women's Clubs submitted to the Bureau of Standards a specification prepared by this group in cooperation with the Bureau of Standards and requested the assistance of the Bureau of Standards in developing this document to the status of a commercial standard.

### L9—Specifications for Shrinkage of Woven Cotton Yard Goods

In November, 1933, the New York Board of

Trade on behalf of its Textile Section submitted to the ASA specifications covering the shrinkage of woven cotton yard goods for development to an American Standard. This specification had been prepared by the Textile Shrinkage Conference, a representative committee of the submitting body, as a result of more than a year's investigation of shrinkage problems. Following the submittal a general conference from 20 groups having an interest in the textile field was held on November 28, 1933. This conference adopted a suitable scope for the proposed standard, recommended that the question of harmonizing slight differences in test methods favored by various organizations should be left for further consideration by the groups particularly concerned, and authorized a subcommittee to study questions of nomenclature, limits of residual shrinkage in pre-shrunk woven cottons, etc.

As directed by the conference the subcommittee has given active attention to the various questions presented to it. Tentative agreement has been reached by the subcommittee on the test method for determining shrinkage, the allowable limit of residual shrinkage in woven cotton yard goods that are labeled as pre-shrunk, and certain matters of nomenclature. These recommendations will be incorporated in a report and included in a draft standard for later consideration of the conference. The members of the subcommittee are as follows: Wm. D. Appel, U. S. Bureau of Mines; Oscar Berman, Union Made Garment Manufacturers Assn.; Robert S. Dempsey, Association of Cotton Textile Merchants of N. Y.; Ephraim Freedman, American Society for Testing Materials and American Association of Textile Chemists and Colorists; M. Leo Gitelson, Textile Fabrics Association; Frank A. Lester, National Association of Finishers of Textile Fabrics; Ruth O'Brien, U. S. Bureau of Home Economics and American Home Economics Association; H. B. Robbins, Laundryowners National Association of the U. S. and Canada; and H. G. Zervas, National Association of Finishers of Textile Fabrics.

### Coal Classification Work Is Under Way in Russia

Engineers of Soviet Russia are making headway in the wide program of classification of coals, according to an article in *Standardization Review*, published by the USSR Standards Committee (Jan.-Feb., 1934). Methods of determining coking coals are explained by M. Sapojnikov, and a discussion of the importance of coal classification from the standpoint of industries is presented by Professor Stadnikov.

### Manufacturers Use ASA Service in Export Sales

Foreign standards, available at the office of the American Standards Association, have been used frequently by manufacturers to write proper quotations on materials and products for export.

The information service of the ASA is available for anyone interested in overseas specifications and other standards.

### Home Economists To Hold Convention in New York

The 27th annual meeting of the American Home Economics Association will be held in New York City, June 25 to 29, at the Hotel Pennsylvania.

"The Consumer in the New Economic Order" will be discussed by representatives of industry, business, government agencies, and consumer groups as well as by members of the Association.

The first public meeting will be at 8:30 p.m. on Tuesday with Miss Frances Zuill of the University of Iowa, president of the Association, in the chair. Miss Anna Cooley of Teachers College, Columbia University, will preside at the second public meeting on Wednesday at 2:00 p.m.

Family relationships, family economics, the house and its management, food and nutrition, textiles and clothing are special divisions of home economics to which group meetings will be devoted.

### Railway Motors Work Expanded

On request of the sponsor, the American Institute of Electrical Engineers, the Electrical Standards Committee has changed the scope of the sectional committee on Railway Motors (C35) to read as follows:

Definitions, classification, rating and methods of test for rotating electrical machinery forming a part of the power equipment of electrically propelled railway cars and locomotives.

The former scope provided only for work on the standardization of motors used in the propulsion of railway cars and locomotives, while the proposed scope includes standardization work on all of the rotating electrical equipment.

## Report Shows Progress Of Miscellaneous Standards

The status of miscellaneous standards and methods of testing, etc., are given in the following review. This report is up to date as of May 1, 1934.

### 03-1926—Specifications for Cross-Ties and Switch-Ties

*Sponsors*—American Railway Engineering Association; U. S. Department of Agriculture, Forest Service.

Mention was made last year that some consideration had been given to the possible necessity of rewriting certain sections of this standard, approved in 1926, in order to clarify the intent of these provisions but no decision has been made on this question. In their present form these specifications have been adopted by the National Lumber Manufacturers Association, the American Railway Association and the National Hardwood Association.

### 04—Methods of Testing Wood

*Sponsors*—American Society for Testing Materials; U. S. Department of Agriculture, Forest Service.

Approved in 1927, these standards for procedures covering the testing of wood and timber have become generally accepted and used by various agencies. No revisions are under consideration. These methods are also A.S.T.M. standards with the designations D143-27 and D198-27 respectively.

### 05—Specifications for Wood Poles

*Sponsor*—ASA Telephone Group.

The American Standard for Ultimate Fiber Stresses of Wood Poles (05a-1930) has been expanded to include ultimate fiber stress values for Lodgepole Pine Poles and Douglas fir poles.

Dimensions of Lodgepole Pine Poles (05f2-1933) and Dimensions of Douglas Fir Poles (05g2-1933) were approved as American Standards, and Specifications for Lodgepole Pine Poles (05f1-1933) and Specifications for Douglas Fir Poles (05g1-1933) were approved as American Tentative Standards in December, 1933.

The specifications and uniform dimension tables for northern white cedar, western red cedar, chestnut and southern pine poles, approved by the ASA in 1931, continue in wide use.

With the approval of the new standards for lodgepole pine and Douglas fir poles, the six major pole timbers of the United States have been brought into a standardization system designed to serve the best interests of both producer and consumer.

### X1-1921—Method for Sampling of Coal

*Sponsor*—American Society for Testing Materials.

In the résumé of this project given in INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY for May, 1933, page 86, mention was made of the publication by the Society, as tentative, of recommendations for the sampling of coke and the possibility that this tentative method might at some later time be incorporated with the standard method for sampling of coal (A.S.T.M. designation D21-16). Action to this effect has, however, not been taken by the Society.

Consideration has been given to re-examination of the provisions of this standard method in view of the investigations into various phases of coal sampling that have been carried on under the direction of the Sectional Committee on Coals (M20).

### Z7-1932 — Illuminating Engineering Nomenclature and Photometric Standards

*Sponsor*—Illuminating Engineering Society.

This standard, originally approved as American Standard in 1925, was revised as a proprietary standard and approved as such in 1932. Several meetings have been held looking to improvements in the standards, particularly with a view to inclusion of the definitions with the work of the sectional committee on Definitions of Electrical Terms (C42).

### Z10—Scientific and Engineering Symbols and Abbreviations

*Sponsors*—American Association for the Advancement of Science; American Institute of Electrical Engineers; American Society of Civil Engineers; American Society of Mechanical Engineers; Society for the Promotion of Engineering Education.

Since the organization, in January, 1926, of the sectional committee to deal with the unification of symbols and abbreviations a great deal of work has been accomplished, 13 sets of symbols having been approved by the ASA. With the approval during the past year of Graphical Symbols for Electric Power and Wiring (Z10g2), Graphical Symbols for Radio (Z10g3), and Graphical Symbols for Electric Traction Including Railway Signalling (Z10g5), the work of the sectional committee, as originally planned, has been completed. However, since it is the general opinion that work in this field should be continued, steps have been taken toward the re-organization of the committee into two sectional committees, one to have charge of standardization of symbols and signs for equations and formulas and the other to have charge of the standardization of graphical symbols and abbreviations. It is also contemplated that work now covered by other sectional committees may be included.

#### Z11—Methods of Testing Petroleum Products and Lubricants

*Sponsor*—American Society for Testing Materials.

This comprehensive group of standard methods for determining characteristics of petroleum and its products, including lubricants, now numbers 31. In 1933, action was taken affecting the status, either in the nature of revision or advancement, of seven standards in this group, and one new standard method of test for Gravity of Petroleum and Petroleum Products by Means of the Hydrometer (A.S.T.M. D287-33) was approved. All of these standards were developed by A.S.T.M. Committee D-2 and submitted to the ASA by the A.S.T.M. upon recommendation of the sectional committee Z11, which is identical in personnel with A.S.T.M. Committee D-2.

#### Z14—Standards for Drawings and Drafting Room Practice

*Sponsors*—American Society of Mechanical Engineers; Society for the Promotion of Engineering Education.

In its meeting of December, 1933, the sectional committee discussed the semi-final draft of the proposed standard prepared by the editing committee, on the basis of all proposals so far published for general criticism and comment. A revised draft recently completed by the editing committee will be sent to letter ballot of the sectional committee, and submittal of the proposed standard to the ASA for final approval is expected at an early date.

#### Z15—Standards for Graphics

*Sponsor*—American Society of Mechanical Engineers.

Subcommittee No. 3 held a meeting in October, 1933, and discussed the draft of a Code of Preferred Practice for Graphic Presentation prepared by a subgroup. It was decided to develop this draft code further and then to distribute it widely for comment and criticism.

Subcommittee No. 4, on Engineering and Scientific Graphs, held a meeting in April, 1934, and decided to appoint three new subgroups, one to deal with pictorial representation of data; the second with terms to be used for describing the shapes of different types of curves, and the third, to prepare a brochure on recommended practice for the presentation of functional relationship.

#### Z17—Preferred Numbers

In June, 1933, the ASA office transmitted to the sectional committee a proposal of a series of preferred numbers recommended for adoption by a technical committee of the International Standards Association. The chairman of the ASA sectional committee has now prepared a memorandum in which the merits of the ISA system are discussed and certain changes suggested. Copies of this memorandum have been sent to all members of the sectional committee as a basis for a statement soon to be made to the ISA committee on behalf of American industry.

#### Z18—Standardization of Speeds of Machinery

*Sponsor*—American Society of Mechanical Engineers.

A proposed American Standard for Machine Speeds, dated March, 1933, based on replies received in response to a questionnaire sent out to industry, was distributed for general criticism and comment. A special subcommittee is now being appointed to review these replies.

#### Z21—Approval and Installation Requirements for Gas-Burning Appliances

*Sponsor*—American Gas Association.

Of the 21 approval and installation requirements for gas-burning appliances under development by a sectional committee under the sponsorship of the American Gas Association, twelve have been approved as American Standard. These cover gas ranges, flexible gas tubing, hotel and restaurant ranges, private garage heaters, clothes dryers, incinerators, gas-heated irons, conversion burners in house-heating and water-heating ap-

pliances, gas water heaters, space heaters, hot plates and laundry stoves, and draft hoods.

Five other requirements have been submitted for approval as American Standard. These cover central heating gas appliances, industrial gas boilers, gas burner valves, gas unit heaters and gas conversion burners.

The approval requirements for gas water heaters, formally approved in 1933, are now undergoing revision.

The Subcommittee on Listing Requirements for Gas, Pressure and Temperature Control Accessories is actively at work on the preparation of requirements for automatic devices designed to prevent the escape of unburned gas and it is expected that these listing requirements will be submitted for approval in the near future.

## Z22—Dimensional Standards and Recommended Practice for Motion Picture Apparatus

*Sponsor*—Society of Motion Picture Engineers.

Proposals have been made that this project be changed from a proprietary sponsorship to the administrative sectional committee method. Discussions to that end are now going forward.

## Z23—Specifications for Sieves for Testing Purposes

*Sponsors*—American Society for Testing Materials; U. S. Department of Commerce, Bureau of Standards.

Following consideration of a draft of the proposed standard, which was discussed at a meeting of the sectional committee in March, 1933, further discussions have harmonized some of the divergent viewpoints expressed on certain sections of the draft. The officers of the sectional committee expect that it may be possible to take a letter ballot of the committee some time during the summer.

## Z24—Acoustical Measurements and Terminology

*Sponsor*—Acoustical Society of America.

During the past year this sectional committee has made considerable progress. A review of the present status of its work is given on page 85 of this issue.

## Z25—Rules for Rounding Numerical Values

This project originated in connection with the general conference held in October, 1932, which resulted in the establishment of the American

Standard Inch-Millimeter Conversion for Industrial Use (B48.1-1933). The conference recommended that the rules for rounding conversion values given in the (then proposed) American Standard be laid down also in a separate standard as applying to engineering work in general. The preparation of a draft standard is still under consideration by the standing committee appointed by the general conference.

## Z29—Reference Data for Periodicals

This project was initiated in 1933 upon recommendation of a conference called by the ASA at the request of the American Library Association (See INDUSTRIAL STANDARDIZATION, June, 1933, page 102, and July, 1933, page 120). A steering committee representative of the groups most directly interested in the project was appointed by the ASA and prepared a questionnaire on Current Practice Affecting Reference Value of Periodicals which was mailed recently to a large number of publishers of periodicals. The replies to the questionnaire will serve as a basis for recommended rules to be drafted by the steering committee and be submitted to interested groups.

## Z30.1-1933—Standard Rules Governing the Preparation of Micrographs and Alloys

*Proprietary Sponsor*—American Society for Testing Materials.

The above was approved as an American Standard in October, 1933, with the designation of Z30.1-1933. This standard, prepared by Committee E-4 of the A.S.T.M., presents comprehensive directions for this important division of metallography. The A.S.T.M. designation is E30. See INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY for November 1933, page 200.

## Z31-1933—Marking of Gold Filled and Rolled Gold Plate Articles Other Than Watch Cases

This standard was originally developed as a commercial standard (CS47-34) as a result of a request from the jewelry trades and allied industries for a standard for these articles for incorporation in NRA codes. Submittal to the ASA resulted from action taken at the general conference held in September, 1933, at which time this procedure was recommended in the event that the proposed commercial standard was accepted and promulgated. (See INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY, February, 1934, page 44.)

### Alfred J. Jupp

Alfred J. Jupp, vice president and sales manager of the Lunkenheimer Company, Cincinnati, Ohio, and a member of the ASA Standards Council since 1930, died on April 10. Mr. Jupp represented the Manufacturers Standardization Society of the Valve and Fittings Industry on the Standards Council.

In addition to his membership on the Standards Council, Mr. Jupp represented the MSS on the Sectional Committee on Pipe Thread, the Sectional Committee on Pipe Flanges and Fittings, the Code for Pressure Piping committee, and the committee on Screw Threads for Hose Couplings. He had given much time in recent months to his duties as a member of the Valve and Fittings Manufacturing Industry Code Authority, and it was while attending a meeting of the Code Authority that he suffered the stroke which resulted in his death.

Mr. Jupp was a member of the American Society of Mechanical Engineers, the American Society for Testing Materials, the Society of Naval Architects and Marine Engineers, and the Engineers' Club of Cincinnati.

### Ask ASA Library For Publications

New publications on standards and simplified practice may be purchased or borrowed from the Library of the American Standards Association, 29 West 39th Street, New York.

The library has on file more than 12,000 American and foreign standards.

Members of the ASA have the privilege of calling upon the Library for research assistance in connection with standards and standardization.

**SAFETY AND ECONOMY IN HEAVY CONSTRUCTION**, by Ray J. Reigeluth. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York. \$2.50.

Causes of accidents in the construction industry have been analyzed, and as a result this book presents in compact form information on the strength of construction materials and the capacity of construction equipment—information which when properly understood and used will result in safer and more economical use of materials and equipment. The book is prepared especially for the use of superintendents and foremen in charge of heavy construction work. Numerous tables and photographs illustrate the best practice in the use and care of such materials as boilers; rigging; wire rope and sheaves; chains; pile driving; explosives; concrete forms; gasoline equipment; highway construction; tools; etc.

**I.A.E. STANDARDS DATA SHEETS**. Institution of Automobile Engineers, 83, Pall Mall, S.W. 1, London, Eng.

An up-to-date collection of standards approved by the Institution of Automobile Engineers, including revisions to December, 1933. Subjects covered include accessories and small fittings; bodywork and coachwork; electrical equipment; transmission and power unit; wheels; rims; tires and valves. The standards may be borrowed from the American Standards Association.

**THE A.S.H.V.E. GUIDE, 1934**. *The American Society of Heating and Ventilating Engineers*, 51 Madison Avenue, New York. \$5.00.

This twelfth edition of the *A.S.H.V.E. Guide*, recognized authority in the heating and ventilating industry, includes new chapters on cooling load and cooling methods, unit conditioners, radiant and electric heating, humidifying and dehumidifying equipment, steam heating systems and piping. The remaining chapters have been extensively changed and revised in this edition to bring them up-to-date.

The Guide may be borrowed from the ASA Library.

**TESTS OF THE FIRE RESISTANCE AND STRENGTH OF WALLS OF CONCRETE MASONRY UNITS**, by Carl A. Menzel. Portland Cement Association. No charge.

A report of the results obtained from tests and fire-resistant and load-carrying properties of 215 walls. The fire-endurance tests were carried out in accordance with American Tentative Standard Fire Tests of Building Construction and Materials (A2-1926). Relative fire-resistant properties of walls of a wide range of composition and design, the relative influence of the various factors studied, and the load-carrying ability of the walls before and after severe fire exposure were determined.

**IMPACT TESTING OF CAST IRON**. *American Society for Testing Materials*, 260 South Broad Street, Philadelphia, Pa. 50 cents.

The report of its Subcommittee XV on Impact Testing of Cast Iron, which made a study of the usefulness of the various tests of this type applied to cast iron, has been published by the A.S.T.M. Tables, charts, and illustrations show the results of the tests.

**STANDARDS FOR ELECTRIC ARC WELDING APPARATUS** (*American Standard C52.1-1933; A.I.E.E. No. 38*). National Electrical Manufacturers Association and American Institute of Electrical Engineers, sponsors. Published by the A.I.E.E. 30 cents. 20 per cent discount to ASA Members if purchased from the ASA office.

**STANDARDS FOR RESISTANCE WELDING APPARATUS** (*American Standard C52.2-1933; A.I.E.E. No. 39*). National Electrical Manufacturers Association and American Institute of Electrical Engineers, sponsors. Published by the A.I.E.E. 30 cents. 20 per cent discount to ASA Members if purchased from the ASA office.

Minor changes in definitions and in some of the technical requirements of these two A.I.E.E. standards were made at the time of their approval by the American Standards Association. The new standards have just been published.

**GEAR MATERIALS AND BLANKS** (*American Recommended Practice B6.2-1933*). Available from the sponsor organizations: the American Gear Manufacturers Association, 201 First National Bank Building, Wilkesburg, Pa.; and The American Society of Mechanical Engineers, 29 West 39th Street, New York; and from the ASA office. 50 cents. 20 per cent discount to ASA Members if purchased through the ASA office.

Following a review of all available standards on gears in the United States and Europe by the sectional committee, this Recommended Practice was approved by the American Standards Association. It covers forged and rolled carbon steel, steel fittings, bronze and brass castings, and forged and rolled alloy steel. Approval of the standard was announced in our issue of Aug., 1933, p. 139. The standard has just been published.

## Power Switchgear Work Is Extended

The scope of the sectional committee on Power Switchgear (C37) has been extended to include a variety of apparatus in the general field of switchgear which was not included in the former scope. The work formerly covered included only oil circuit breakers, large air circuit breakers, disconnecting and horn gap switches.

The new work includes high-voltage fuses (above 750 volts) and the current limiting resistors used with such fuses, metal clad switchgear, relays directly associated with power switchgear, network protectors, switchgear assemblies including automatic switchgear, and power connectors of the type used with switchgear.

## Bathing Suit Manufacturers Ask for Knitting Standards

Knitted bathing suit manufacturers have asked the National Bureau of Standards to conduct a general conference to consider the adoption of a Recommended Commercial Standard on rib knitted bathing suits. The conference will be held in Philadelphia on Friday, May 25, at 10:00 a. m., E.S.T. The conference was requested by the National Knitted Outerwear Association.

A general conference on rib knitted sweaters was also to have been held on the same date. The conferences were scheduled to take place in the Benjamin Franklin Hotel.

## Textile Cones and Tubes Are Approved by Bureau of Standards

The Bureau of Standards has announced that the Simplified Practice Recommendation for Simplification of Paper Cones and Tubes (R143-33) has been reaffirmed without change other than the addition of a cone for asbestos roving. This addition will be incorporated in the recommendation when the book is reprinted.

The cones and tubes covered by the recommendation are used in the textile industry for winding warp and knitting yarns, silk, rayon, hosiery yarns, tire cord, thread packages, wire insulating yarn, and asbestos roving.

## Electric Bond & Share Becomes ASA Member

The Electric Bond & Share Company, New York, has become a member of the American Standards Association, in behalf of itself and subsidiary companies.

## Russian Technologist Gets Thermometer Data

The Standards Committee of the USSR asked the American Standards Association what corrections, if any, were made on the thermometer mercury column when temperatures were taken in the process of distillation.

The answer, obtained through the courtesy of a member of several of our sectional committees, was forwarded in the next mail to Russia.

## Insurance Group Takes Membership in ASA

The Casualty Group of the American Mutual Alliance has enlarged its membership and participation in the work of the American Standards Association. Services of the ASA will be made available to the insurance companies of the Group.

## Committee Will Write Methods of Tests & Define Coal Sizes

The Sectional Committee on Classification of Coal<sup>1</sup> has recently authorized a new subcommittee of the Technical Committee on Classification to be designated as "Subcommittee VII to Define Coal Sizes and Coal Friability." The purpose of this subcommittee is not to standardize commercial screens or methods of preparing coal for the market, but to formulate definitions and methods of test for sizes of coal.

The problem assigned to this subcommittee is one of the most urgent questions now under consideration by the various groups which are setting up NRA Codes for the coal industry in different sections of the country. In order to correlate these questions within the coal industry the chairman of each subdivisional code authority has been invited to appoint a representative on this subcommittee.

J. D. Doherty, Research Engineer of the Koppers Coal Company, Inc., of Pittsburgh, has been appointed as chairman of this subcommittee. A meeting was held in Cincinnati on May 7 in connection with sessions of the Coal Division of the American Mining Congress but details of this organization meeting were not available for this issue of INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY.

<sup>1</sup> M20; American Society for Testing Materials, sponsor.

## Minimum Measurements Are Set for Clothing

During 1932 the Commercial Standards Unit, under whose direction a campaign for knit underwear standards had been carried on, announced the completion of a Commercial Standard for Knit Underwear (exclusive of rayon)—CS33-32.

Subsequently, the woven wear division of the Underwear Institute established a research associateship at the Bureau for the purpose of developing standard minimum measurements for various types of woven-fabric underwear to be incorporated in the industry's code under the NRA.

Questionnaires have been circulated by the Institute to all manufacturers of woven underwear. Following consideration of the results of the questionnaire and the examination of garments in accordance with requirements thus developed the industrial standardization committee has developed a set of minimum measurements that should give proper fit both before and after laundering.

These standards presenting minimum measurements for various types of men's and boys' underwear have been accepted by the group and incorporated into the industry's NRA code.

Similar work is under way in the knit underwear sections of the industry as an extension of CS33-32. It is expected that extensions will be made to the commercial standards now in effect and that the new standards will be added to the industry's NRA code as fast as they are completed.

## Chicago Conference Adopts Standard for Asphalt Tile

During the past year the Federal Specifications Board has had a committee under the Chairmanship of Lieutenant Commander Wm. H. Smith engaged upon a study of asphalt floor tile. The Bureau of Standards and several of the manufacturers of this type of floor covering have been co-operating in the investigations of this committee.

From this work, after consideration of several drafts, a proposed federal specification was developed in December, 1933. In order to extend the usefulness of the proposed federal specification, the asphalt tile industry has given consideration to the possibility of developing a commercial standard.

Following conferences with the staff of the Division of Trade Standards of the Bureau of Standards, the secretary of the Coal Authority for the Asphalt and Mastic Tile Industry requested the Bureau to call a general conference to consider the adoption of a commercial standard for asphalt floor tile, based upon the proposed federal specification.

## British Write Color Standards for Paint

The British Color Council has chosen 12 colors as a standard for household paints and paints for household equipment in the interest of simplification and economy.

The Color Council was appointed by the London Chamber of Commerce, at the request of household furnishings makers and paint producers.

At the general conference, which was held May 3 at the Stevens Hotel, Chicago, consideration was given to the proposed commercial standard. By modifying certain provisions, the proposed commercial standard was made identical technically with the proposed federal specification. The conference adopted the proposed commercial standard and this will promptly be transmitted to bodies interested in the production and use of this commodity for acceptance. The conference further voted that if and when the proposed commercial standard is accepted and promulgated the document shall be submitted to the American Standards Association for approval.

## Furriers Appoint Experts On Standardization Committee

The Technical Association of the Fur Industry has appointed the following to the Standardization Committee, which is carrying out such excellent work in fur dressing and dyeing research under the direction of Dr. William E. Austin: C. A. Blair, William E. Austin, H. C. Neiberg, A. Ruderman, H. I. Eisenman, L. Hirschberg, J. C. Goldstein, and J. Berson.

The Standardization Committee expects to complete its work at an early date and the results, which will be made public to the trade, undoubtedly will prove of great benefit to the entire industry.—*Fur Trade Review*, Feb. 8, 1934.

## Brush Manufacturers Ask for Simplification

The National Bureau of Standards was recently asked by the American Brush Manufacturers Association to assist in developing simplification for twisted-in-wire and spiral wound brushes. No details beyond the request are yet available.

## Specifications and Test Methods Developed Under ASA Procedure

The present status of all of the chemical projects under ASA procedure is described below. Standard methods of analysis in the chemical industries are widely used as a basis for producers, and users, as well as for independent agencies in the particular fields to which they refer.

**K3-1921—Methods of Chemical Analysis of Manganese Bronze**

**K4-1931—Methods of Chemical Analysis of Gun Metal**

**K5-1922—Methods of Chemical Analysis of Alloys of Lead, Tin, Antimony and Copper**

**K12-1921—Methods of Battery Assay of Copper**

*Sponsor*—American Society for Testing Materials.

Of the above standard methods the first four were submitted as existing standards and approved by ASA as American Tentative Standards in the years indicated. The A.S.T.M. designations are respectively B27-19, B28-19, B18-21, and B34-20. The standard methods for routine analysis of white pigments and dry red lead were approved as American Standards in revised form in 1930, following submittal under the proprietary method; the A.S.T.M. designations are D34-30 and D49-29.

**K14-1930—Specifications for Liquid Soap**

*Sponsor*—U. S. Department of Commerce, Bureau of Standards.

The status of this project has been unchanged during the past year. See INDUSTRIAL STANDARDIZATION AND COMMERCIAL STANDARDS MONTHLY, May, 1933, page 84.

**K15-1933—Methods of Routine Analysis of White Pigments**

**K16-1933—Methods of Routine Analysis of Dry Red Lead**

(See K3-1921)

**K18-1933—Methods of Laboratory Sampling and Analysis of Coal and Coke**

*Sponsor*—American Society for Testing Materials.

In 1933 this standard was revised to include an optional method of grinding coal samples permitting the use of a ball mill. The additional method was developed by the Bureau of Mines at its Pittsburgh station and published by the Society as a tentative revision in 1932. The A.S.T.M. designation is D271-33.

**K19—Specifications for Fuel Oils**

*Sponsor*—American Society for Testing Materials.

Following the revision of the Commercial Standard for Fuel Oils early in 1933, further consideration was given to possible changes in the technical requirements of certain classes of fuel oil. Questions concerning the sulphur content, volatility, and Conradson carbon are still before the committee.

### British Government Begins To Standardize Packaging

Failure of British industries to adopt standardized packages has led the Minister of Agriculture and Fisheries, London, to initiate a project leading to a uniform system of carton sizes.

It was pointed out that wholesalers and retailers alike had complained of the costly use of a wide variety of package sizes, and the British government took cognizance of the problem when it was found that food products often deteriorated because of the poor quality of cartons in which they had been packed.

A committee has been appointed to investigate the problem, and will do its work as a governmental agency. Packages for flowers will be one of the first investigations, it is reported.

# Check Up!

During 1933, a total of 29 standards approved by the American Standards Association were revised to keep pace with technical developments in the needs of the times. Some of these were revisions of standards that had been last approved as recently as 1932; some of the others had been in current use for as long as ten years. Check your file of American Standards against the list given below to be sure you have the latest, most up-to-date approvals.

<i>Standard</i>	<i>Previous Symbol</i>	<i>Present Symbol</i>	<i>Price</i>
Portland Cement, Methods of Sampling and Testing	A1b-1931	A1.2-1933	.25
Steel Reinforcing Spirals	A38-1927	A38-1933	.05
Radial Ball Bearings, Single Row Type and Separable (Open) Type	B3a-1930	B3.1-1933	In Press
Mechanical Refrigeration, Safety Code for Wrench-Head Bolts and Nuts and Wrench Openings	B9-1930	B9-1933	.30
Plain and Thread Plug and Ring Gage Blanks	B18b-1927	B18.2-1933	.50
Electric Wiring and Apparatus in Relation to Fire Hazard (Nat. Elec. Code)	B47-1932	B47-1933	.10
Code for Protection Against Lightning	C1-1931	C1-1933	.05
	C5-1929 Pt I	C5.1-1933	.15
	C5-1929 Pt II	C6.2-1933	
Design for Seven-Inch Girder-Grooved Rail	E4-1923	E4-1933	.10
Design for Nine-Inch Girder-Grooved Rail	E5-1923	E5-1933	.10
Design for Seven-Inch Girder Guard Rail	E6-1923	E6-1933	.10
Design for Nine-Inch Girder Guard Rail	E7-1923	E7-1933	.10
Seven-Inch, 82 lb. Plain Girder Rail and Splice Bars	E8-1926	E8-1933	.10
Seven-Inch, 92 lb. Plain Girder Rail and Splice Bars	E9-1926	E9-1933	.10
Seven-Inch, 102 lb. Plain Girder Rail and Splice Bars	E11-1926	E11-1933	.10
Zinc Coatings on Structural Steel Shapes, Plates and Bars and Their Products	G8.1-1930	G8.1-1933	.25
Carbon-Steel and Alloy-Steel Blooms, Billets and Slabs for Forgings, Specs. for	G9-1924	G9.1-1933	.25
White Pigments, Routine Analysis of	K15-1930	K15-1933	.25
Dry Red Lead, Routine Analysis of	K16-1930	K16-1933	.25
Coal and Coke, Methods of Laboratory Sampling and Analysis	K18-1930	K18-1933	.25
Ultimate Fiber Stresses of Wood Poles	O5a-1930	O5a-1933	.10
Viscosity of Petroleum Products and Lubricants, Methods of Test for	Z11.2-1930	Z11.2-1933	.25
Penetration of Greases and Petroleum, Method of Test for	Z11.3-1928	Z11.3-1933	.25
Cloud and Pour Points of Petroleum Products, Method of Test for	Z11.5-1932	Z11.5-1933	.25
Flash and Fire Points by Means of Open Cup, Method of Test for	Z11.6-1928	Z11.6-1933	.25
Sulfur in Petroleum Oils Heavier than Illuminating Oils, Method of Test for	Z11.13-1928	Z11.13-1933	.25
Gas Ranges, Approval Requirements	Z21a-1932	Z21.1-1933	.40

# Ask Us Another!

The American Standards Association receives thousands of requests every year for information about standards and related subjects. Often the information desired would be very difficult to obtain from any other single source.

*A few typical requests received within the last year follow:*

## **A company making airplanes wrote:**

*"In connection with our export sales, we are interested in metric standards, preferably French and German, as applied to nuts, bolts, studs, pipe fittings and general parts associated with automotive and aircraft engine practice."*

The ASA sent them references to German and French standards on this subject. Later the company sent a personal representative to the ASA and we lent them foreign standards which applied to their foreign business.



## **An indemnity company wrote us, saying:**

*"We would be very pleased to have you send all available information you may have relative to Marine Safety Code Standards covering ship accident prevention and stevedoring accident prevention as related to the maritime industry."*

The ASA provided them with 11 magazine articles and six sets of safety rules for the prevention of accidents to longshoremen, together with another document comparing safety codes for stevedoring operations.



## **Here is an inquiry from a manufacturer of electrical appliances:**

*"We should like to secure the complete report of the Food Investigation Board of England covering the 5-year investi-*

*gation of the use of expanded rubber insulation known as "Onazote" in connection with its use for the preservation of food."*

The ASA wrote to England and a few weeks later gave this company the material requested.



## **A manufacturer of gear-making machinery asked:**

*"Have you anything on file regarding the 'Schlesinger Method' of machine tool inspection, especially bevel gear cutting machines?"*

By return mail we sent "Prüfbuch für Werkzeugmaschinen" by G. Schlesinger.



## **An executive of one of the largest companies manufacturing carpets and carpeting wrote:**

*"I would appreciate a list of titles of standards relating to Textiles and Textile Fibres. I am particularly interested in any standards applying to carpets and rugs."*

The ASA sent them four standards pertaining to this subject together with an article on "Establishing Quality Standards for Rugs and Carpets." The company was also referred to the Government publication on textiles, published by the U. S. Department of Commerce, and to the A. S. T. M. specifications on "Methods of Test for Textile Materials."

*All members of the ASA are entitled to use this information service. The next time you are in need of information about standards, write to us and we may be able to save you time and money.*

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ENGINEERING—INDUSTRIAL

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(This does not include standards issued since the publication of this list.)

## Explanation of abbreviations used in cross references

<i>AIEE</i> American Institute of Electrical Engineers	<i>Lab.Stat.Bull.</i> United States Bureau of Labor Statistics Bulletin
<i>API</i> American Petroleum Institute	<i>CS</i> Commercial Standard
<i>ASTM</i> American Society for Testing Materials	<i>SPR</i> Simplified Practice Recommendation
<i>Bur. Stds.</i> Bureau of Standards	<i>Bur.Mines TP</i> Bureau of Mines Technical Paper
<i>FS</i> Federal Specification	

## A—CIVIL ENGINEERING

		Price
A1a-1931	Portland Cement, Specifications <i>ASTM C9-30..</i>	.25
A1.2-1933	Portland Cement, Methods of Sampling and Testing <i>ASTM C77-32.....</i>	.25
A2-1926	Fire Tests of Building Construction and Materials <i>ASTM C19-26T .....</i>	.25
A5-1930	Toughness of Rock, Method of Test for <i>ASTM D3-18.....</i>	.25
A6-1925	Drain Tile, Specifications for <i>ASTM C4-24.....</i>	.25

(See beginning of list for explanation of abbreviations and keying)

		Price	
A10-1934	Safety in the Construction Industry ("Manual of Accident Prevention in Construction", by Associated General Contractors of America).....	2.00	B1a-1934
A11-1930	Lighting Factories, Mills and Other Work Places, Code of <i>Lab. Stat. Bull. 556</i> .....	.20	B2-1911
A12-1932	Floor and Wall Openings, Railings and Toe Boards, Safety Code for.....	.20	B4a-1932
A13-1928	Identification of Piping Systems, Scheme for.....	.50	B5a-1932
A14-1923	Ladders, Safety Code for.....	Under revision	B5b-1932
A17-1931	Elevators, Dumbwaiters and Escalators, Safety Code for .....	1.00	B5c-1932
A19-1923	Voids in Fine Aggregate for Concrete, Method of Test for <i>ASTM C30-22</i> .....	.25	B5e-1932
A23-1932	School Lighting, Standards of.....	.20	B5.5-1932
A26-1930	Stone, Slag, Gravel, Sand and Stone Block for Use as Highway Materials, Methods of Sampling <i>ASTM D75-22</i> .....	.25	B6.1-1932
A27-1924	Apparent Specific Gravity of Coarse Aggregates, Method of Test for <i>ASTM D30-18</i> .....	.25	B6.2-1932
A31-1924	Materials for Cement Grout Filler for Brick and Stone Block Pavements, Specifications for <i>ASTM D57-20</i> .....	.25	B7-1930
A37.1-1930	Penetration of Bituminous Materials, Method of Test for <i>ASTM D5-25</i> .....	.25	B8-1932
A37.2-1930	Bituminous Materials, Method of Float Test for <i>ASTM D139-27</i> .....	.25	B9-1932
A37.3-1930	Determination of Bitumen, Method of Test for <i>ASTM D4-27</i> .....	.25	B11-1932
A38-1933	Steel Reinforcing Spirals <i>SPR 53-32</i> .....	.05	B13-1932
A39-1933	Window Cleaning, Safety Code for.....	.20	B15-1932
A47-1932	Steel Reinforcing Bars <i>SPR 26-30</i> .....	.05	B16a-1932
A48-1932	Forms for Concrete Joist Construction Floors <i>SPR 87-32</i> .....	.05	B16b-1932
A49.1-1933	Gypsum, Specifications for <i>ASTM C22-25</i> .....	.25	B16b1-1932
A49.2-1933	Calcined Gypsum, Specifications for <i>ASTM C23-30</i> .....	.25	B16b2-1932
A49.3-1933	Gypsum Plasters, Specifications for <i>ASTM C28-30</i> .....	.25	B16c-1932
A49.4-1933	Gypsum Molding Plaster, Specifications for <i>ASTM C59-30</i> .....	.25	B16d-1932
A49.5-1933	Gypsum Pottery Plaster, Specifications for <i>ASTM C60-30</i> .....	.25	B16e-1932
			B16g-1932
			B17a-1932
			B17b-1932
			B17c-1932

*For standard abbreviations and symbols in civil engineering, see serial no. Z10.*

*(See beginning of list for explanation of abbreviations and keying)*

## B—MECHANICAL ENGINEERING

Price

2.00	B1a-1924	Screw Threads for Bolts, Machine Screws, Nuts and Commercially Tapped Holes.....	<i>Under Revision</i>	
.20	B2-1919	Pipe Threads.....		.40
.20	B4a-1925	Tolerances, Allowances and Gages for Metal Fits..		.50
.20	B5a-1927	T-Slots, Their Bolts, Nuts, Tongues and Cutters, Dimensions of.....		.35
.50	B5b-1929	Tool Holder Shanks and Tool Post Openings, Dimensions of.....		.25
1.00	B5c-1930	Milling Cutters.....		.75
.25	B5e-1930	Taps; Cut and Ground Threads.....		.50
.20	B5.5-1932	Rotating Air Cylinders and Adapters.....		.35
	B6.1-1932	Spur Gear Tooth Form.....		.45
	B6.2-1933	Gear Materials and Blanks.....		.50
.25	B7-1930	Abrasive Wheels, Safety Code for the Use, Care and Protection of <i>Lab. Stat. Bull. 527</i> .....		.05
.25	B8-1932	Protection of Industrial Workers in Foundries, Safety Code for.....		.20
.25	B9-1933	Mechanical Refrigeration, Safety Code for.....		.30
	B11-1926	Power Presses and Foot and Hand Presses, Safety Code for <i>Lab. Stat. Bull. 430</i> .....		.20
.25	B13-1924	Logging and Sawmill Safety Code. <i>Bur. Stds. Handbook 5</i> .....		.60
.25	B15-1927	Mechanical Power Transmission Apparatus, Safety Code for.....		.35
.25	B16a-1928	Cast Iron Pipe Flanges and Flanged Fittings for Maximum WSP of 125 lbs.....		.50
.05	B16b-1928	Cast Iron Pipe Flanges and Flanged Fittings for Maximum WSP of 250 lbs.....		.50
.05	B16b1-1931	Cast Iron Pipe Flanges and Flanged Fittings for 800 lbs. Hydraulic Pressure.....		.35
.25	B16b2-1931	Cast Iron Pipe Flanges and Flanged Fittings for Maximum WSP of 25 lbs.....		.40
.25	B16c-1927	Malleable Iron Screwed Fittings for Maximum WSP of 150 lbs.....		.40
.25	B16d-1927	Cast Iron Screwed Fittings for Maximum WSP of 125 and 250 lbs.....		.35
.25	B16e-1932	Steel Flanged Fittings and Companion Flanges..		.65
.25	B16g-1929	Cast Iron Long Turn Sprinkler Fittings.....		.50
.25	B17a-1924	Cold-Finished Shafting, Standard Diameters and Lengths of.....		.20
	B17b-1925	Square and Flat Stock Keys, Dimensions of.....		.20
	B17c-1927	Transmission Shafting, Code for Design of.....		.75

(See beginning of list for explanation of abbreviations and keying)

		Price	
B17d-1927	Plain Taper Stock Keys, Square and Flat, Dimensions of.....	.20	C1-193
B17e-1927	Gib Head Taper Stock Keys, Square and Flat, Dimensions of.....	.20	C2-192
B17f-1930	Woodruff Keys, Keyslots and Cutters.....	.35	C5.1-19
B18a-1927	Small Rivets.....	.30	C5.2-19
B18c-1930	Slotted Head Proportions, Machine Screws, Cap Screws and Wood Screws.....	.45	C5.3-19
B18d-1930	Track Bolts and Nuts.....	.40	
B18e-1928	Round Unslotted Head Bolts, Dimensions of.....	.40	
B18f-1928	Plow Bolts, Dimensions of.....	.35	
B18g-1929	Tinners', Coopers' and Belt Rivets.....	.35	
B18.2-1933	Wrench-Head Bolts and Nuts and Wrench Openings .....	.50	
B24-1927	Forging and Hot Metal Stamping, Safety Code for <i>Lab. Stat. Bull. 451</i> .....	.15	C8a-19
B26-1925	Fire Hose Coupling Screw Thread.....	.25	C8b1-1
B28a-1927	Rubber Mills and Calenders, Safety Code for <i>Lab. Stat. Bull. 447</i> .....	.05	C8b2-1
B29a-1930	Roller Chains, Sprockets and Cutters.....	.50	C8d1-1
B36.1-1934	Welded and Seamless Steel Pipe <i>ASTM A53-33</i>	.25	
B36.2-1934	Welded Wrought-Iron Pipe <i>ASTM A72-33</i> ....	.25	
B36.3-1934	Lap-Welded and Seamless Steel Pipe for High-Temperature Service <i>ASTM A106-33T</i> .....	.25	
B36.4-1934	Electric-Fusion-Welded Steel Pipe (Sizes 30 in. and over) <i>ASTM A134-32T</i> .....	.25	C8j1-1
B36.5-1934	Electric-Resistance-Welded Steel Pipe <i>ASTM 135-32T</i> .....	.25	C8j2-1
B36.6-1934	Forge-Welded Steel Pipe <i>ASTM A136-32T</i>	.25	C8j3-1
B36.7-1934	Lock-Bar Steel Pipe <i>ASTM A137-32T</i> .....	.25	
B36.8-1934	Riveted Steel and Wrought-Iron Pipe <i>ASTM A138-32T</i> .....	.25	C8k1-1
B36.9-1934	Electric-Fusion-Welded Steel Pipe (Sizes 8 in. to but not including 30 in.) <i>ASTM A139-32T</i>	.25	C8k2-1
B38c1-1931	Testing Domestic Refrigerators Using Ice, Code for	.20	C8.10-
B45.1-1932	Foundry Patterns of Wood <i>CS 19-32</i> .....	.10	C8.11-
B47-1933	Plain and Thread Plug and Ring Gage Blanks <i>CS 8-33</i> .....	.10	C10-19
B48.1-1933	Inch-Millimeter Conversion for Industrial Use...	.20	C11-19
B49-1932	Shaft Couplings, Integrally Forged Flange Type for Hydro-Electric Units .....	.35	

*For standard abbreviations and symbols in mechanical engineering, see serial no. Z10.*

*(See beginning of list for explanation of abbreviations and keying)*

## C—ELECTRICAL ENGINEERING

20	C1-1933	Electric Wiring and Apparatus in Relation to Fire Hazard (National Electrical Code).....	.05
20	C2-1927	National Electrical Safety Code <i>Bur. Stds. Handbooks 3, 16</i> .....	1.10
35	C5.1-1933	Code for Protection Against Lightning	
30		Part I, Protection of Persons	
45	C5.2-1933	Part II, Protection of Buildings and Miscellaneous Property	
40	C5.3-1929	Part III, Protection of Structures Containing Inflammable Liquids and Gases	
40		Published in one pamphlet <i>Bur. Stds. Handbook 17</i> .....	.15
35	C8a-1932	Definitions and General Standards for Wires and Cables <i>AIEE 30-1932</i> .....	.40
50	C8b1-1928	Tinned Soft or Annealed Copper Wire for Rubber Insulation, Specifications for (Also pub. as H16-1928 <i>AIEE 60, 61-1928 ASTM B33-21</i> .....	.30
15	C8b2-1928	Soft or Annealed Copper Wire, Specifications for (Also pub. as H4-1928) <i>AIEE 60, 61-1928 ASTM B3-27</i> .....	
25	C8d1-1928	30% Rubber Insulation for Wire and Cable for General Purposes, Specifications for <i>AIEE 63-1928</i> .....	
25	C8j1-1928	Cotton Covered Round Copper Magnet Wire, Specifications for <i>AIEE 69-1928</i> .....	.30
25	C8j2-1928	Silk Covered Round Copper Magnet Wire, Specifications for... <i>AIEE 70-1929</i> .....	
25	C8j3-1928	Enameled Round Copper Magnet Wire, Specifications for <i>AIEE 71-1928</i> .....	
25	C8k1-1932	Weatherproof (Weather Resisting) Wires and Cables <i>AIEE 72-1932</i> .....	.20
25	C8k2-1932	Heat Resisting Wires and Cables <i>AIEE 73-1932</i> .....	
20	C8.10-1933	Impregnated Paper Insulation for Lead Covered Power Cables ( <i>mimeographed</i> ) .....	.15
10	C8.11-1933	Code Rubber Insulation for Wire and Cable for General Purposes, Specifications for ( <i>mimeographed</i> ) .....	.15
20	C10-1924	Electrical Equipment of Buildings, Standard Symbols for <i>AIEE 42-1923</i> .....	.20
35	C11-1927	Hard Drawn Aluminum Conductors, Physical and Electrical Constants for <i>AIEE 46-1927</i> .....	.20
	C12-1928	Electricity Meters, Code for.....	.50
	C13-1926	Tubular Steel Poles, Specifications for.....	.25

(See beginning of list for explanation of abbreviations and keying)

		Price	
C15-1923	600 Volt Direct Current Overhead Trolley Construction, Specifications for .....	.30	E3-1923
C18-1930	Dry Cells and Batteries, Specifications for <i>FS W-B-101</i> .....	.15	E4-1933
C19-1928	Industrial Control Apparatus, Definitions, Classifications, Rating and Methods of Test for <i>AIEE 15-1928</i> .....	.40	E5-1933
C21-1926	Synchronous Converters, Definitions, Classification, Rating and Methods of Test for <i>AIEE 8-1925</i> ..	.40	E6-1933
C22-1925	Instrument Transformers, Definitions, Classification, Rating and Methods of Test for <i>AIEE 14-1925</i> .....	.30	E7-1933
C29a-1930	Insulator Tests <i>AIEE 41-1930</i> .....	.30	E8-1933
C33a-1929	Outlet Boxes, Standard .....	.25	E9-1933
C35-1928	Railway Motors <i>AIEE 11-1925</i> .....	.30	E10-1933
C40-1928	Storage Batteries, Definitions, Classification, Rating and Method of Test for <i>AIEE 36-1928</i> ..	.20	E11-1933
C44-1931	Rolled Threads for Screw Shells of Electric Sockets and Lamp Bases .....	.35	
C48-1931	Electric Railway Control Apparatus, Standards for <i>AIEE 16-1933</i> .....	.40	
C50c1-1928	Induction Motors and Induction Machines in General, Rating Provisions for (Separate publication deferred) <i>AIEE 9-1927, rating paragraphs 9-61, 157, 500, 501, 502</i> .....	.40	
C52.1-1933	Electric Arc Welding Apparatus .....	.40	
C52.2-1933	Resistance Welding Apparatus .....	.30	
C53-1932	Recommended Practice in the Temperature Operation of Transformers <i>AIEE 100-1930</i> .....	.20	
C55-1934	Capacitors, Standards for <i>AIEE 18</i> .....	In press	
C57.1-1933	Constant Current Transformers, Standards for ..	.30	

*For standard abbreviations and symbols in electrical engineering, see serial no. Z10.*

#### D—AUTOMOTIVE (AUTOMOBILE AND AIRCRAFT)

D1-1925	Aeronautic Safety Code .....	1.50	
D3-1927	Colors for Traffic Signals, Safety Code for .....	.25	
D4-1927	Brakes and Brake Testing, Safety Code for <i>Bur. Stds. Misc. Pub. 107</i> .....	.05	

#### E—TRANSPORTATION

E2-1923	Design for Joint Plates for Seven-Inch Girder-Grooved and Guard Rails .....	.20	
---------	---	-----	--

*(See beginning of list for explanation of abbreviations and keying)*

Price			Price
	E3-1923	Design for Joint Plates for Nine-Inch Girder-Grooved and Guard Rails.....	.20
.30	E4-1933	Design for Seven-Inch Girder-Grooved Rail.....	.10
.15	E5-1933	Design for Nine-Inch Girder-Grooved Rail.....	.10
	E6-1933	Design for Seven-Inch Girder Guard Rail.....	.10
	E7-1933	Design for Nine-Inch Girder Guard Rail.....	.10
.40	E8-1933	Seven-Inch, 82 lb Plain Girder Rail and Splice Bars	.10
	E9-1933	Seven-Inch, 92 lb Plain Girder Rail and Splice Bars	.10
.40	E10-1929	Special Track Work Materials, Specifications for..	.25
	E11-1933	Seven-Inch, 102 lb Plain Girder Rail and Splice Bars .....	.10

### G—FERROUS METALLURGY

.30	G8b1-1931	Zinc-Coated (galvanized) Sheets <i>ASTM A93-27</i>	.25
.30	G8-1-1933	Zinc Coatings on Structural Steel Shapes, Plates and Bars and Their Products, Specifications for <i>ASTM A123-33</i> .....	.25
.20	G9-1-1933	Carbon-Steel and Alloy-Steel Blooms, Billets and Slabs for Forgings, Specifications for <i>ASTM A17-29</i> .....	.25
.35	G12-1931	Refined Wrought-Iron Bars, Specifications for <i>ASTM A41-30</i> .....	.25
.40	G13-1931	Wrought-Iron Plates, Specifications for <i>ASTM A42-30</i> .....	.25

### H—NON-FERROUS METALLURGY

.40	H4-1928	Soft or Annealed Copper Wire, Specifications for <i>ASTM B3-27 AIEE 61-1928</i> ..... (Pub. also as <i>C8b2-1928</i> )	
.40	H7-1925	Brass Forging Rod, Specifications for <i>ASTM B15-18</i> .....	.25
.30	H11-1924	Solder Metal, Specifications for <i>ASTM B32-21</i>	.25
	H13-1925	Plumbago Crucibles for Non-Tilting Furnaces in Non-Ferrous Foundry Practice, Outside Dimensions of .....	.20
	H14-1929	Hard-Drawn Copper Wire, Specifications for <i>ASTM B1-27</i> .....	.25
1.50	H16-1928	Tinned Soft or Annealed Copper Wire for Rubber Insulation, Specifications for <i>ASTM B33-21 AIEE 60-1928</i> .....	(Pub. also as <i>C8b1-1928</i> )
.25	H17.1-1932	Lake Copper Wire Bars, Cakes, Slabs, Billets, Ingots and Ingot Bars, Specifications for <i>ASTM B4-27</i> .....	.25
.05	H17.2-1932	Electrolytic Copper Wire Bars, Cakes, Slabs, Billets, Ingots and Ingot Bars, Specifications for <i>ASTM B5-27</i> .....	.25
.20		(See beginning of list for explanation of abbreviations and keying)	

## K—CHEMICAL INDUSTRY

		Price	
K2-1927	Gas Safety Code .....	.20	M14-19
K3-1921	Manganese Bronze, Methods of Chemical Analysis of <i>ASTM B27-19</i> .....	.25	M15-19
K4-1921	Gun Metal, Methods of Chemical Analysis of <i>ASTM B28-19</i> .....	.25	M17-19
K5-1922	Alloys of Lead, Tin, Antimony and Copper, Methods of Chemical Analysis of <i>ASTM B18-21</i> ....	.25	M18-19
K12-1921	Battery Assay of Copper, Methods of <i>ASTM B34-20</i> .....	.25	M19-19
K13-1930	Gas-Mask Canisters, Code for Identification <i>Lab. Stat. Bul. 512</i> .....	.05	01-1930
K14-1930	Liquid Soap, Specifications for <i>FSB 27 (also FS P-S-618)</i> .....	.05	03-1920
K15-1933	White Pigments, Methods of Routine Analysis of <i>ASTM D34-33</i> .....	.25	04a-192
K16-1933	Dry Red Lead, Methods of Routine Analysis of <i>ASTM D49-33</i> .....	.25	04b-192
K18-1933	Coal and Coke, Methods of Laboratory Sampling and Analysis <i>ASTM D271-33</i> .....	.25	05a-193

## L—TEXTILE INDUSTRY

L1-1929	Textile Safety Code <i>Lab. Stat. Bull. 509</i> .....	.05	05a-193
L3-1931	Cotton Rubber-Lined Fire Hose, Specifications for <i>ASTM D296-31T</i> .....	.25	05b1-19
L5-1931	General Methods of Testing Woven Textile Fabrics <i>ASTM D39-27</i> .....	.25	05b2-19
			05c1-193
			05c2-193
			05d1-193
			05d2-193
			05e1-193
			05e2-193
			05f1-193
			05f2-193
			05g1-193
			05g2-193

## M—MINING

M2-1926	Installing and Using Electrical Equipment in Coal Mines, Safety Rules for <i>Bur. Mines TP 402</i> ...	.05	
M5-1932	Screen Testing of Ores (hand method), Methods for .....	.25	P1-1925
M6-1931	Drainage of Coal Mines, Recommended Practice for .....	.40	
M10-1928	Miscellaneous Outside Coal Handling Equipment, Recommended Practice for .....	.25	X1-1921
M11-1927	Wire Rope for Mines, Specifications and Recommended Practice in Use at Mines.....	.25	X2-1922
M12-1928	Ladders and Stairs for Mines, Recommended Practice for the Construction and Maintenance of.	.25	Z7-1932
M13-1925	Rock Dusting Coal Mines to Prevent Coal Dust Explosions, Recommended Practice for.....	.25	Z8-1924

(See beginning of list for explanation of abbreviations and keying)

Price

Price

M14-1930	Explosives in Bituminous Coal Mines, Recommended Practice for the Use of.....	.25
M15-1931	Coal Mine Transportation, Safety Code for.....	.20
M17-1930	Fire Fighting Equipment in Metal Mines.....	.25
M18-1928	Underground Transportation in Metal Mines.....	.10
M19-1928	Mechanical Loading Underground in Metal Mines, Recommended Practice in.....	.25

## O—WOOD INDUSTRY

01-1930	Woodworking Plants, Safety Code for <i>Lab. Stat. Bull. 519</i> .....	.10
03-1926	Cross-ties and Switch-ties, Specifications for.....	.25
04a-1927	Small Clear Specimens of Timber, Methods of Testing <i>ASTM D143-27</i> .....	.25
04b-1927	Static Tests of Timbers in Structural Sizes, Methods of Conducting <i>ASTM D198-27</i> .....	.25
05a-1933	Ultimate Fiber Stresses of Wood Poles.....	.10
05b1-1931	Northern White Cedar Poles, Specifications for.....	.20
05b2-1931	Northern White Cedar Poles, Dimensions for.....	
05c1-1931	Western Red Cedar Poles, Specifications for.....	.20
05c2-1931	Western Red Cedar Poles, Dimensions for.....	
05d1-1931	Chestnut Poles, Specifications for.....	.20
05d2-1931	Chestnut Poles, Dimensions for.....	
05e1-1931	Southern Pine Poles, Specifications for.....	.20
05e2-1931	Southern Pine Poles, Dimensions for.....	
05f1-1933	Lodgepole Pine Poles, Specifications for.....	.20
05f2-1933	Lodgepole Pine Poles, Dimensions of.....	
05g1-1933	Douglas Fir Poles, Specifications for.....	.20
05g2-1933	Douglas Fir Poles, Dimensions of.....	

## P—PULP AND PAPER INDUSTRY

P1-1925	Paper and Pulp Mills, Safety Code for <i>Lab. Stat. Bull. 410</i> .....	.15
---------	---	-----

## X, Z—MISCELLANEOUS

X1-1921	Sampling Coal, Method of <i>ASTM D21-16</i> .....	.25
X2-1922	Protection of the Heads and Eyes of Industrial Workers, Safety Code for the <i>Bur. Stds. Handbook 2</i> .....	.10
Z7-1932	Illuminating Engineering Nomenclature and Photometric Standards .....	.15
Z8-1924	Laundry Machinery and Operations, Safety Code for <i>Lab. Stat. Bull. 375</i> .....	.05

(See beginning of list for explanation of abbreviations and keying)

## SYMBOLS AND ABBREVIATIONS

Z10a-1932	Mechanics, Structural Engineering and Testing Materials, Symbols for.....	.25
Z10b-1929	Hydraulics, Symbols for.....	.35
Z10c-1931	Heat and Thermodynamics, Symbols for.....	.30
Z10d-1930	Photometry and Illumination, Symbols for.....	.20
Z10e-1930	Aeronautical Symbols .....	.35
Z10f-1928	Mathematical Symbols .....	.30
Z10g1-1929	Electrical Quantities, Letter Symbols for <i>AIEE 17g1-1928</i> .....	.20
Z10g2-1933	Electric Power and Wiring, Graphical Symbols Used for <i>AIEE 17g2-1934</i> .....	.20
Z10g3-1933	Radio, Graphical Symbols Used in <i>AIEE 17g3-1934</i> .....	.20
Z10g5-1933	Electric Traction Including Railway Signalling, Graphical Symbols Used for <i>AIEE 17g5-1934</i> ..	.40
Z10g6-1929	Telephone and Telegraph Use, Symbols for <i>AIEE 17g6-1929</i> .....	.20
Z10i-1932	Abbreviations for Scientific and Engineering Terms .....	.40

## PETROLEUM PRODUCTS

Z11.1-1928	Standard Abridged Volume Correction Table for Petroleum Oils <i>ASTM D206-25 API 500-29</i> ..	.25
Z11.2-1933	Viscosity of Petroleum Products and Lubricants, Methods of Test for <i>ASTM D88-33 API 518-33</i> ..	.25
Z11.3-1933	Penetration of Greases and Petrolatum, Method of Test for <i>ASTM D217-33T</i> .....	.25
Z11.4-1928	Melting Point of Paraffin Wax, Method of Test for <i>ASTM D87-22 API 513-29</i> .....	.25
Z11.5-1933	Cloud and Pour Points of Petroleum Products, Method of Test for <i>ASTM D97-33 API 506-33</i> ..	.25
Z11.6-1933	Flash and Fire Points by Means of Open Cup, Method of Test for <i>ASTM D92-33 API 511-33</i> ..	.25
Z11.7-1928	Flash Point by Means of the Pensky-Martens Closed Tester, Method of Test for <i>ASTM D93-22 API 510-29</i> .....	.25
Z11.8-1930	Water and Sediment in Petroleum Products by Means of Centrifuge, Method of Test for.. <i>ASTM D96-30 API 520-30</i> .....	.25
Z11.9-1930	Water in Petroleum Products and Other Bituminous Materials, Method of Test for <i>ASTM D95-30 API 519-30</i> .....	.25
Z11.10-1930	Distillation of Gasoline, Naphtha, Kerosene, and Similar Petroleum Products, Method of Test for <i>ASTM D86-30 API 507-30</i> .....	.25

(See beginning of list for explanation of abbreviations and keying)

Z11.11-

Z11.12-

Z11.13-

Z11.14-

Z11.15-

Z11.16-

Z11.17-

Z11.18-

Z11.19-

Z11.20-

Z11.21-

Z11.22-

Z11.23-

Z11.24-

Z11.25-

Z11.26-

Z11.27-

Z11.28-

Z11.29-

Z11.30-

Z11.31-

Z11.11-1932	Distillation of Natural Gas Gasoline, Method of Test for <i>ASTM D216-32 API 508-32</i> .....	.25
Z11.12-1928	Neutralization Number of Petroleum Products and Lubricants, Method of Test for <i>ASTM D188-27T</i>	.25
Z11.13-1933	Sulfur in Petroleum Oils Heavier than Illuminating Oils, Method of Test for <i>ASTM D129-33 API 516-33</i> .....	.25
Z11.14-1928	Thermal Value of Fuel Oil, Method of Test for <i>ASTM D240-27 API 517-29</i> .....	.25
Z11.15-1928	Steam Emulsion of Lubricating Oils, Method of Test for <i>ASTM D157-28 API 515-29</i> .....	.25
Z11.16-1928	Analysis of Grease, Method of <i>ASTM D128-27 API 501-29</i> .....	.25
Z11.17-1930	Burning Quality of Kerosene Oils, Method of Test for <i>ASTM D187-30 API 502-30</i> .....	.25
Z11.18-1930	Burning Quality of Mineral Seal Oil, Method of Test for <i>ASTM D239-30 API 504-30</i> .....	.25
Z11.19-1930	Burning Quality of Long-Time Burning Oil for Railway Use, Method of Test for <i>ASTM D219-30 API 503-30</i> .....	.25
Z11.20-1930	Saponification Number, Method of Test for <i>ASTM D94-28 API 514-29</i> .....	.25
Z11.21-1930	Detection of Free Sulfur and Corrosive Sulfur Compounds in Gasoline, Method of Test for <i>ASTM D130-30 API 521-30</i> .....	.25
Z11.22-1932	Melting Point of Petrolatum, Method of Test for <i>ASTM D127-30 API 523-30</i> .....	.25
Z11.23-1932	Determination of Autogenous Ignition Temperatures, Method of Test <i>ASTM D286-30</i> .....	.25
Z11.24-1932	Flash Point of Volatile Flammable Liquids, Method of Test <i>ASTM D56-21 API 509-29</i> .....	.25
Z11.25-1932	Carbon Residue of Petroleum Products, Method of Test <i>ASTM D189-30 API 505-30</i> .....	.25
Z11.26-1932	Testing Gas Oils, Methods of <i>ASTM D158-28 API 512-29</i> .....	.25
Z11.27-1932	Expressible Oil and Moisture in Paraffin Waxes, Method of Test <i>ASTM D308-29T</i> .....	.25
Z11.28-1932	Terms Relating to Petroleum, Tentative Definitions <i>ASTM D288-31T</i> .....	.25
Z11.29-1933	Dilution of Crankcase Oils, Method of Test <i>ASTM D322-33</i> .....	.25
Z11.30-1933	Precipitation Number of Lubricating Oils, Method of Test <i>ASTM D91-33</i> .....	.25
Z11.31-1933	Gravity of Petroleum Products and Lubricants <i>ASTM D287-33</i> .....	.25

(See beginning of list for explanation of abbreviations and keying)

## DUST EXPLOSIONS

Price

Z12a-1930	Installation of Pulverized Fuel Systems, Safety Code for .....	}	.15
Z12b-1931	Pulverizing Systems for Sugar and Cocoa, Safety Code for .....		
Z12c-1931	Prevention of Dust Explosions in Starch Factories, Safety Code for .....		
Z12d-1928	Prevention of Dust Explosions in Flour and Feed Mills, Safety Code for .....		
Z12e-1931	Prevention of Dust Explosions in Terminal Grain Elevators, Safety Code for .....		
Z12f-1930	Prevention of Dust Explosions in Coal Pneumatic Cleaning Plants, Safety Code for .....		
Z12g-1931	Prevention of Dust Explosions in Wood Flour Manufacturing Establishments, Safety Code for .....		
Z12h-1931	Prevention of Dust Ignitions in Spice Grinding Plants, Safety Code for .....		
Z12i-1931	Use of Inert Gas for Fire and Explosion Prevention, Safety Code for <i>All included in Lab. Stat. Bull. 562</i> .....		

(Separate copies of Z12a-1930 and Z12f-1931 are also available at ten cents each)

Z15.1-1932	Engineering and Scientific Charts for Lantern Slides .....	.50
------------	--	-----

## GAS BURNING APPLIANCES, APPROVAL AND INSTALLATION REQUIREMENTS

Z21.1-1933	Gas Ranges, Approval Requirements .....	.40
Z21.2-1932	Flexible Gas Tubing, Approval Requirements....	.30
Z21.3-1932	Hotel and Restaurant Ranges, Approval Requirements .....	.40
Z21.4-1932	Private Garage Heaters, Approval Requirements..	.40
Z21.5-1932	Clothes Dryers, Approval Requirements.....	.40
Z21.6-1932	Incinerators, Approval Requirements.....	.40
Z21.7-1932	Gas Heated Ironers, Approval Requirements.....	.40
Z21.8-1933	Conversion Burners in House Heating and Water Heating Appliances, Installation Requirements for .....	.40
Z21.9-1933	Hot Plates and Laundry Stoves, Approval Requirements .....	.40
Z21.10-1933	Gas Water Heaters, Approval Requirements.....	.40
Z21.11-1933	Space Heaters, Approval Requirements for.....	.40
Z21.12-1933	Draft Hoods, Listing Requirements for.....	.30

Z22-1930	Dimensional Standards for Motion Picture Apparatus and Recommended Practice.....	.30
----------	--	-----

(See beginning of list for explanation of abbreviations and keying)

Z27-193

Z30.1-1

Z31-193

REL

C42

C50

M20

Z17

TH

Intern

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In som

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Copies

		13
Price		Price
Z27-1933	City Gas, Recommended Practice for the Installation, Maintenance and Use of Piping and Fittings for .....	.35
Z30.1-1933	Micrographs of Metals and Alloys, Rules Governing the Preparation of <i>ASTM E2-30</i> .....	.25
Z31-1933	Marking of Gold Filled and Rolled Gold Plate Articles Other than Watchcases <i>CS47-34</i> .....	.05
	<i>(See beginning of list for explanation of abbreviations and keying)</i>	

## REPORTS, DISCUSSIONS AND DRAFT STANDARDS FOR SALE

*(These are not approved American Standards)*

	Discussion of National Electrical Safety Code C2-1927 <i>Bur. Stds. Handbook 4</i> .....	1.00
	Preliminary Report on "Protection of Electrical Circuits and Equipment against Lightning" <i>Bur. Stds. Misc. Pub. 95, Parts IV and V</i> .....	.25
C42	Report on Proposed American Standard Definitions of Electrical Terms (preliminary draft)...	1.00
C50	Rotating Electrical Machinery (draft of proposed American Standard published for general comment and criticism) .....	.25
M20	Classification of coals (preliminary draft) .....	.25
Z17	ASTM 1934 Preprint) .....	.25
	Preferred Numbers, Table of (informally approved and recommended to industry for a period of trial in practice) .....	.20



## FOREIGN STANDARDS

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# INDEX TO AMERICAN STANDARDS AND OTHER PUBLICATIONS FOR SALE

Abbreviations—see also Symbols  
for scientific and engineering terms. Z10i-1932  
letter symbols for electrical quantities. Z10g1-1929

Abrasive wheels, safety code. B7-1930

Accident and fire prevention  
abrasive wheels, safety code. B7-1930  
aeronautic safety code. D1-1925  
brakes and brake testing, automobile. D4-1927  
building construction and materials,  
fire tests. A2-1926  
coal handling equipment. M10-1923  
coal mine transportation. M15-1931  
coal mines  
bituminous, explosives in. M14-1930  
electrical equipment in. M2-1926  
rock dusting. M13-1925  
construction safety code. A10-1934  
dust explosions, prevention. Z12  
dust ignitions, prevention of, spice  
grinding plants. Z12h-1931  
electrical code, national. C1-1933  
electrical safety code, national. C2-1927  
elevators, dumbwaiters and escalators. 17-1931  
fire and explosion, use of inert gas  
for prevention. Z12i-1931  
floor and wall openings. A12-1932  
forging and hot metal stamping. B24-1927  
foundries, protection of workers. B8-1932  
gas mask canisters, identification. K13-1930  
gas safety code. K2-1927  
hand and foot presses. B11-1926  
hands and eyes, protection of. X2-1922  
ladders. A14-1923  
ladders and stairs for mines. M12-1923  
lifting machinery and operations. Z8-1924  
lighting  
factories, mills and other work  
places. A11-1930  
schools. A23-1932  
lightning, code for protection against. C5  
logging and sawmill safety code. B13-1924  
mines, metal, fire fighting equipment. M17-1930  
paper and pulp mills, safety code. P1-1925  
power presses. B11-1926  
power transmission, mechanical. B15-1927  
pulverized fuel systems. Z12a-1930  
pulverizing systems for sugar and  
cocoa. Z12h-1931  
railings and toe boards. A12-1932  
refrigeration, mechanical. B9-1933  
rubber mills and calenders. B28a-1927  
textile safety code. L1-1929  
traffic signals, colors for. D8-1927  
window cleaning, safety code for. A39-1933  
woodworking plants, safety code. O1-1930

Aeronautic safety code. D1-1925

Alloys of lead, tin, antimony and  
copper. K5-1922

Aluminum conductors, hard drawn. C11-1927

Bars, steel reinforcing. A47-1932

Batteries  
dry cell. C18-1930  
storage. C40-1928

Bitumen, determination of. A37.3-1930

Bituminous materials  
float test. A37.2-1930  
penetration test. A37.1-1930

Blooms, billets and slabs for forgings,  
carbon-steel and alloy-steel. G9.1-1933

Bolts  
plow. B18f-1923  
round unslopped head. B18e-1923

Bolts and nuts  
track. B18d-1930  
wrench-head, and wrench openings. B18.2-1930

Brakes and brake testing, automobile. D4-1927

Building construction and materials,  
fire tests. A2-1926

Buildings, electrical equipment, symbols for. C10-1924

Cables—see Wires and cables

Capacitors. C55-1934

Cement, Portland  
methods of test. A1.2-1933  
specifications for. A1a-1931

Chains and sprockets, transmission. B29a-1930

Coal  
classification (report). M20  
handling equipment. M10-1923  
sampling. X1-1921

Coal and coke, sampling and analysis. K18-1933

Coal mines  
drainage. M6-1931  
explosives. M14-1930  
installing and using electrical equipment. M2-1926  
rock dusting. M13-1925  
transportation, safety code. M15-1931

Color  
foundry patterns of wood. B45.1-1932  
identification of piping systems. A13-1923

Concrete  
reinforcement, steel spiral rods. A38-1933  
specific gravity of coarse aggregate. A27-1924  
steel reinforcing bars. A47-1932  
voids in fine aggregate. A19-1929

Construction safety code. A10-1934

Control apparatus  
electric railway. C48-1931  
industrial. C19-1933

Converters, synchronous. C21-1923

Copper, battery assay of. K12-1921

Cylinders and adapters, rotating air. B5.5-1932

Drain tile. A6-1932

Dry cells and batteries. C18-1930

Dust explosions, prevention of  
in coal pneumatic cleaning plants. Z12f-1930  
in flour and feed mills. Z12d-1932  
in starch factories. Z12e-1932  
in terminal grain elevators. Z12g-1931  
in wood floor manufacturing. Z12g-1931

Dust ignitions, prevention, spice grinding plants. Z12h-1931

Electric railway control apparatus. C48-1931

Electrical code, National. C1-1933

Electrical definitions (draft). C42

Electrical equipment  
buildings (symbols). C10-1924  
coal mines. M2-1926

Electrical safety code, National. C2-1927

Electrical sockets, screw threads for. C44-1931

Electricity meters (watt hour). C12-1925

Elevators, dumbwaiters and escalators. A17-1931

Explosives, in bituminous coal mines. M14-1930

Fire and explosion prevention, use of  
inert gas. Z12i-1931

Fire hose, cotton rubber-lined. L3-1931

Fits, metal  
gages  
floor and  
floors, for  
struction  
Forging an  
Forging ro  
Forgings,  
blooms  
Forms for  
floors  
Foundries  
patterns  
protection  
Fuel system

Gate blank  
and riv  
Gas burning  
installa  
clothes d  
conversion  
water  
draft ho  
garage h  
hot plate  
incinerat  
ironers,  
laundry  
ranges  
gas  
hotel a  
space he  
tubing, f  
water he  
Gas, city,  
Gas, inert,  
and ex  
Gas mask  
Gas safety  
Gears  
materials  
spur; to  
Gold filled  
marking  
Graphics—  
charts  
Gun metal  
Gypsum  
calined  
molding  
plasters  
pottery  
specificat

Heads and  
Hose coupl  
Hose, fire,  
Z12g-1931

Illuminati  
Inch-millim  
Insulator to

Keys—See

Ladders, sp  
Ladders an  
Lamp bases  
Lantern sli  
tife cha  
Laundry m  
safety  
Lead, dry  
Lighting  
factories,  
places  
schools

## Index—continued

- fits, metal, tolerances, allowances and  
gages for .....B4a-1925  
Floor and wall openings.....A12-1932  
Floors, forms for concrete joist con-  
struction.....A48-1932  
Forging and hot metal stamping.....B24-1927  
Forging rod, brass.....H7-1925  
Forgings, carbon-steel and alloy-steel  
blooms, billets and slabs for.....G9.1-1933  
Forms for concrete joist construction,  
floors.....A48-1932  
Foundries  
patterns of wood (color).....B45.1-1932  
protection of workers in.....B8-1932  
Fuel systems, pulverized, installation.....Z12a-1930  
Gage blanks, plain and thread plug  
and ring.....B47-1933  
Gas burning appliances, approval and  
installation requirements  
clothes dryers.....Z21.5-1932  
conversion burners in house and  
water heating.....Z21.8-1933  
draft hoods.....Z21.12-1933  
garage heaters, private.....Z21.4-1932  
hot plates.....Z21.9-1933  
incinerators.....Z21.6-1932  
ironers, gas heated.....Z21.7-1932  
laundry stoves.....Z21.9-1933  
ranges  
gas.....Z21.1-1933  
hotel and restaurant.....Z21.3-1932  
space heaters.....Z21.11-1933  
tubing, flexible gas.....Z21.2-1932  
water heaters.....Z21.10-1933  
Gas, city, piping and fittings for.....Z27-1933  
Gas, inert, use, for prevention of fire  
and explosion.....Z12i-1931  
Gas mask canisters, identification.....K13-1930  
Gas safety code.....K2-1927  
Gears  
materials and blanks.....B6.2-1933  
spur; tooth form.....B6.1-1932  
Gold filled and rolled gold plate,  
marking.....Z31-1933  
Graphics—Engineering and scientific  
charts for lantern slides.....Z15.1-1932  
Gun metal, chemical analysis of.....K4-1921  
Gypsum  
calcined gypsum.....A49.2-1933  
molding plaster.....A49.4-1933  
plasters.....A49.3-1933  
pottery plaster.....A49.5-1933  
specifications of.....A49.1-1933  
Heads and eyes, protection of.....X2-1922  
Hose couplings, fire, screw threads.....B26-1925  
Hose, fire, cotton, rubber-lined.....L3-1931  
Illuminating engineering nomenclature.....Z7-1932  
Inch-millimeter conversion.....B48.1-1933  
Insulator tests.....C29a-1930  
Keys—See Shafting  
Ladders, safety code for.....A14-1923  
Ladders and stairs for mines.....M12-1928  
Lamp bases, screw threads for.....C44-1931  
Lantern slides, engineering and sci-  
entific charts.....Z15.1-1932  
Laundry machinery and operations,  
safety code.....Z8-1924  
Lead, dry red, analysis.....K16-1933  
Lighting  
factories, mills and other work  
places.....A11-1930  
schools.....A23-1932  
Lightning, protection against, safety  
code  
buildings.....C5.2-1933  
persons.....C5.1-1933  
structures containing inflammable  
liquids and gases.....C5.3-1929  
Logging and sawmill, safety code.....B13-1924  
Machine tools—see Tools, machine  
Manganese bronze, chemical analysis.....K3-1921  
Metal mines  
fire fighting equipment.....M17-1930  
mechanical loading.....M19-1928  
transportation in.....M18-1928  
Metals and alloys, preparation of  
micrographs of.....Z30.1-1933  
Meters, electricity (watt hour).....C12-1928  
Micrographs of metals and alloys.....Z30.1-1933  
Millimeter, inch, conversion.....B48.1-1933  
Mines, coal—see Coal mines  
Mines, metal—see Metal mines  
Motion picture apparatus.....Z22-1930  
Motors, induction and induction ma-  
chines.....C50c1-1928  
Motors, railway.....C35-1928  
National electrical code.....C1-1933  
National electrical safety code.....C2-1927  
Ores, screen testing.....M5-1932  
Outlet boxes.....C33a-1929  
Paper and pulp mills, safety code.....P1-1925  
Patterns, foundry (color).....B45.1-1932  
Petroleum products and lubricants,  
tests  
autogenous ignition temperatures.....Z11.23-1932  
burning quality  
kerosene oils.....Z11.17-1930  
long time burning oil for railway  
use.....Z11.19-1930  
mineral seal oil.....Z11.18-1930  
carbon residue.....Z11.25-1932  
cloud and pour points.....Z11.5-1933  
crankcase oil, dilution.....Z11.29-1933  
definition of terms.....Z11.28-1932  
flash and fire points by means of  
open cup.....Z11.6-1933  
flash point by means of the Pensky-  
Martens closed tester.....Z11.7-1928  
flash point of volatile flammable  
liquids.....Z11.24-1932  
fuel oil, thermal value.....Z11.14-1928  
gas oils, testing.....Z11.26-1932  
gasoline, detection of free sulfur  
and corrosive sulfur compounds.....Z11.21-1930  
gasoline, naphtha, kerosene and  
similar petroleum products, dis-  
tillation.....Z11.10-1930  
gravity.....Z11.31-1933  
grease, analysis.....Z11.16-1928  
greases and petrolatum, penetra-  
tion.....Z11.3-1933  
lubricating oils  
precipitation number.....Z11.30-1933  
steam emulsion.....Z11.15-1928  
natural gas gasoline, distillation.....Z11.11-1932  
neutralization number.....Z11.12-1928  
paraffin wax  
expressible oil and moisture in.....Z11.27-1932  
melting point.....Z11.4-1928  
petrolatum, test for melting point.....Z11.22-1932  
saponification number.....Z11.20-1930  
sulfur in petroleum oils heavier than  
illuminating oil.....Z11.13-1933  
viscosity.....Z11.2-1933

## Index—continued

- volume correction table for petroleum oils .....Z11.1-1928  
water .....Z11.9-1930  
water and sediment.....Z11.8-1930
- Photometric standards, illuminating engineering nomenclature .....Z7-1932
- Pigments, white, analysis.....K15-1933
- Pipe flanges and fittings  
cast iron, all sizes, for maximum WSP of 25 lb per sq in.....B16b2-1931  
cast iron, all sizes for maximum WSP of 125 lb per sq in.....B16a-1928  
cast iron, all sizes for maximum WSP of 250 lb per sq in.....B16b-1928  
cast iron, 800 lb hydraulic.....B16b1-1931  
cast iron screwed fittings for maximum WSP of 125 and 250 lb per sq. in. ....B16d-1927  
cast iron sprinkler fittings.....B16g-1929  
malleable iron screwed fittings for maximum WSP of 150 lb per sq in. ....B16c-1927  
steel flanged fittings and companion flanges .....B16e-1932
- Pipe thread .....B2-1919
- Pipe, welded  
electric-fusion-welded (8 in. to but not incl 30 in.).....B36.9-1934  
electric-fusion-welded (30 in. and over) .....B36.4-1934  
electric-resistance-welded .....B36.5-1934  
forge-welded steel .....B36.6-1934  
lap-welded and seamless.....B36.3-1934  
lock-bar steel .....B36.7-1934  
riveted steel and wrought iron.....B36.8-1934  
welded and seamless steel.....B36.1-1934  
welded-wrought iron .....B36.2-1931
- Piping systems, identification.....A13-1928
- Plumbago crucibles.....H13-1925
- Poles, tubular steel.....C13-1926
- Poles, wood  
chestnut .....O5d2-1931  
specifications .....O5d1-1931
- douglas fir  
dimensions .....O5g2-1933  
specifications .....O5g1-1933
- lodgepole pine  
dimensions .....O5f2-1933  
specifications .....O5f1-1933
- northern white cedar  
dimensions .....O5b2-1931  
specifications .....O5b1-1931
- southern pine  
dimensions .....O5e2-1931  
specifications .....O5e1-1931
- ultimate fiber stresses.....O5a-1930
- western red cedar  
dimensions .....O5c2-1931  
specifications .....O5c1-1931
- Portland cement .....A1a-1931, A1.2-1933
- Power transmission, mechanical, safety code .....B15-1927
- Preferred numbers .....Z17
- Presses; power, foot and hand, safety code .....B11-1926
- Pulverized fuel systems.....Z12a-1930
- Pulverizing systems for sugar and cocoa .....Z12b-1931
- Railings and toe boards.....A12-1932
- Rails  
joint plates for nine-inch girder-grooved and guard.....E3-1929  
joint plates for seven-inch girder-grooved and guard.....E2-1929  
nine-inch girder-grooved.....E5-1933  
nine-inch girder-guard.....E7-1933  
seven-inch girder-grooved.....E4-1933  
seven-inch girder-guard.....E6-1933  
seven-inch, 82 lb plain girder.....E8-1933  
seven-inch, 92 lb plain girder.....E9-1933  
seven-inch, 102 lb plain girder.....E11-1933
- Railway motors .....C35-1926
- Railways  
electric, control apparatus.....C48-1931  
special track work materials.....E10-1929
- Refrigeration, mechanical.....B9-1933
- Refrigerators, domestic, code for testing .....B38e1-1931
- Rivets  
small .....B18a-1927  
tinnners', coopers', belt.....B18g-1929
- Roads  
materials for cement grout filler for brick and stone block pavements..A31-1924  
stone, slag, gravel, sand and stone block, highway materials.....A26-1930
- Rock, toughness of, test for.....A5-1930
- Rotating electrical machinery.....C50
- Rubber mills and calenders.....B28a-1927
- Safety codes—see Accident and fire prevention
- School lighting .....A23-1932
- Screw threads  
bolts, machine screws and commercially tapped holes.....B1a-1924  
fire hose couplings.....B26-1927  
rolled, for lamp bases.....C44-1931
- Screws, slotted head machine and wood screw heads .....B18c-1930
- Shaft couplings, for hydro-electric units .....B49-1932
- Shafting  
cold-finished, dimensions .....B17a-1924  
gib head taper keys, square, flat..B17e-1927  
plain taper keys, square, flat.....B17d-1927  
square and flat keys, dimensions..B17b-1927  
transmission .....B17c-1927  
Woodruff keys .....B17f-1930
- Sheets, zinc coated .....G8b1-1931
- Soap, liquid .....K14-1930
- Solder metal .....H11-1924
- Steel, carbon and alloy; blooms, billets and slabs for forgings.....G9.1-1930
- Steel spiral rods for concrete reinforcement .....A38-1932
- Storage batteries .....C40-1929
- Symbols—see also Abbreviations  
aeronautical .....Z10e-1930  
electric power and wiring, graphical .....Z10g2-1930  
electric traction, graphical.....Z10g5-1930  
electrical equipment of buildings..C10-1924  
electrical quantities, letter symbols for .....Z10g1-1929  
heat and thermodynamics.....Z10c-1931  
hydraulics .....Z10b-1929  
mathematical .....Z10f-1929  
mechanics, structural engineering, testing materials .....Z10a-1932  
photometry and illumination.....Z10d-1930

radio,  
railway,  
telephoTextile  
Ties—cro  
Timber,  
Timbers,  
Tools, m  
milling  
rotatin  
T-slots,  
and  
taps, c  
tool h  
openTraffic s  
Transfor  
constan  
instrum  
temper  
Trolley cWelding  
electric  
resistan  
Window  
Wire  
aluminu  
copper,  
copper,  
copper,  
rubberThe fo  
have an  
cept in  
reportsAnyone  
scope, m  
made to

Sta

## Index—continued

- radio, graphical .....Z10g3-1933  
 railway signalling, graphical.....Z10g5-1933  
 telephone and telegraph.....Z10g6-1929
- A12-1932
- E3-1929
- E2-1929
- E5-1933
- E6-1933
- E7-1933
- E8-1933
- E9-1933
- E11-1933
- C35-1928
- C48-1931
- E10-1933
- B9-1933
- 8c1-1931
- 18a-1927
- 18g-1929
- A31-1924
- A26-1930
- A5-1930
- C50
- 28a-1927
- A23-1932
- 31a-1931
- 32b-1932
- 744-1931
- 18c-1930
- 349-1931
- 7a-1931
- 7e-1927
- 7d-1927
- 7b-1927
- 7c-1927
- 7f-1930
- 14-1930
- 11-1931
- 0.1-1931
- 38-1931
- 40-1933
- 0e-1930
- 2-1933
- 25-1933
- 10-1933
- 21-1933
- 0c-1931
- 0b-1933
- 0f-1933
- 0a-1931
- 0d-1933
- Textile fabrics, testing .....L5-1931  
 Textile safety code.....L1-1929  
 Tie—cross and switch.....O3-1926  
 Timber, small clear specimens.....O4a-1927  
 Timbers, structural, static tests....O4b-1927
- Tools, machine  
 milling cutters .....B5c-1930  
 rotating air cylinders and adapters B5.5-1932  
 T-slots, their bolts, nuts, tongues  
 and cutters .....B5a-1927  
 taps, cut and ground threads.....B5e-1930  
 tool holder shanks and tool post  
 openings .....B5b-1929  
 Traffic signals, colors for.....D3-1927
- Transformers  
 constant current .....C57.1-1933  
 instrument .....C22-1925  
 temperature operation .....C53-1932  
 Trolley construction, overhead.....C15-1923
- Welding  
 electric arc .....C52.1-1933  
 resistance .....C52.2-1933  
 Window cleaning, safety code for...A39-1933
- Wire  
 aluminum conductors .....C11-1927  
 copper, hard drawn.....H14-1929  
 copper, soft or annealed.....C8b2-1928  
 copper, tinned, soft or annealed for  
 rubber insulation .....C8b1-1928
- Wire bars, cakes, slabs billets, ingots  
 and ingot bars  
 electrolytic copper .....H17.2-1932  
 lake copper .....H17.1-1932  
 Wire ropes for mines.....M11-1927
- Wires and cables, insulated  
 code rubber insulation for general  
 purposes .....C8.11-1933  
 cotton covered round copper magnet  
 wire .....C8j1-1928  
 definitions and general standards...C8a-1932  
 enameled round copper magnet  
 wire .....C8j3-1928  
 heat resisting .....C8k2-1932  
 impregnated paper insulated lead  
 covered power cable.....C8.10-1933  
 silk covered round copper magnet  
 wire .....C8j2-1928  
 soft or annealed copper wire.....C8b2-1928  
 thirty per cent rubber insulation...C8d1-1928  
 tinned soft or annealed copper wire.C8b1-1928  
 weatherproof (weather resisting)...C8k1-1932
- Wiring, electric (National Electrical  
 Code) .....C1-1933
- Wood—see Timber  
 Wood poles—see Poles, wood  
 Woodruff keys .....B17f-1930  
 Woodworking plants, safety code....O1-1930  
 Wrought iron bars, refined.....G12-1931  
 Wrought iron plates.....G13-1931
- Zinc coating  
 sheets .....G8b1-1931  
 structural steel shapes, plates, bars.G8.1-1933



The following five pages contain a list of *uncompleted* projects that have an official status before the American Standards Association. Except in a few cases, the work has not progressed to a point where any reports or drafts are available. Where mimeographed or printed material is available, it is so indicated in the listing.

Anyone wishing information regarding any of these projects, such as scope, representation on the committee, or the progress that has been made to date, should address their inquiry to the office of the American Standards Association, 29 West 39th Street, New York, N. Y.

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in this list unless a price is given.*

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Accident and fire prevention	
accident statistics, methods of compiling and recording.	Z16
amusement parks .....	Z13
compressed air machinery .....	B19
compressed air, work in .....	Z28
conveyors and conveying machinery .....	B20
cranes, derricks and hoists .....	B30
elevator inspectors' handbook .....	A17a
exhaust systems .....	Z9
fire protection code for blower and exhaust systems ..	Z33
grains and .....	Z20
industrial sanitation .....	Z4
drinking fountains .....	Z4.2
manufacturing establishments .....	Z4.1
privies .....	Z4.3
machine tool safety code .....	B14
plate and sheet metal working .....	B25
street traffic signs, signals and markings .....	D5
ventilation code .....	Z5
walkway surfaces .....	A22
Acoustical measurements and terminology .....	Z24
acoustical terminology .....	Z24.1
noise measurement .....	Z24.2
Ball bearings .....	B3
adapter sleeve .....	B3d
taper roller bearings .....	B3e
Bolts, nuts and rivets .....	B18
large rivets .....	B18h
socket type set and cap screws .....	B18i
stud and stud bolt dimensions .....	B18b1

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Gag  
m

## Building materials

brick masonry .....	A41
plastering .....	A42
plumbing equipment .....	A40
putty .....	A43
sands for concrete, methods of test for organic impuri- ties in .....	A44
sieve analysis of aggregates for concrete.....	A45

Drawing and drafting room practice.....	Z14
graphical symbols for drawings.....	Z14f
layout .....	Z14d
lettering .....	Z14e
line work .....	Z14e
methods of indicating dimensions.....	Z14b
paper and cloth.....	Z14a

## Electrical engineering (general)

definitions of electrical terms ( <b>draft available, \$1</b> )..	C42
electric motor frame dimensions.....	C28
electrical devices and materials with relation to fire and casualty hazard .....	C33
electrical insulating materials in general.....	C59
electrical measuring instruments.....	C39
insulator for power lines.....	C29
mercury arc rectifiers .....	C34
overhead trolley line materials.....	C43
pole line materials .....	C17
power switchgear .....	C37
protection of electrical circuits and equipment against lightning ( <b>preliminary report available, 25¢</b> ).....	C5
radio .....	C16
rotating electrical machinery ( <b>draft available, 25¢</b> )..	C50
shellac, synthetic resins and other similar insulating materials .....	C58
transformers, induction regulators and reactors.....	C57.2
vacuum tubes for industrial purposes.....	C60
wires and cables	
conductors and stranding .....	C8.12
fibrous coverings and filler.....	C8.14
metallic coverings .....	C8.15
varnished cloth insulation .....	C8.13

## Gages

methods of gaging and specifications for plain limit gages .....	B4b
---	-----

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pressure and vacuum .....	B40
wire and sheet metal .....	B32
Gas burning appliances, approval and installation re-	
quirements .....	Z21
burner valves .....	Z21r
central heating appliances .....	Z21f
conversion burners .....	Z21u
house piping and appliances .....	Z21p
industrial boilers .....	Z21g
pressure and temperature control accessories .....	Z21d
refrigerators .....	Z21b
tubing and fittings, semi-rigid .....	Z21s
unit heaters .....	Z21t
Gears .....	B6
bevel .....	B6e
helical .....	B6e
inspection .....	B6g
nomenclature .....	B6a
power rating .....	B6h
worm .....	B6d
Graphic presentation .....	Z15
engineering and scientific graphs .....	Z15e
non-time series charts .....	Z15e
survey of current practice .....	Z15d
terminology in graphic presentation .....	Z15a
time series charts .....	Z15b
Machine tools .....	B5
chuck and chuck jaws .....	B5g2
circular forming tools and holders .....	B5j
designation and working ranges .....	B5f
drill sizes .....	B5k
electric welding dies and electrode holders .....	B5n
jig bushings .....	B5l
milling machine tables .....	B5o
multiple spindle drill heads .....	B5r
nomenclature for small tools and machine tool elements .....	B5q
punch and die sets .....	B5i
rotating tool shanks .....	B5p
spindle noses and collets .....	B5h
splined shafts and splines .....	B5m
tapers .....	B5d
Manhole frames and covers ( <i>draft available</i> ) .....	A35

Do not order any of these unless a price is indicated

# Mechanical engineering (general)

classification and designation of surface qualities.....	B46
foundry equipment and supplies .....	B45
industrial thermometers .....	B44
leather belting .....	B42
machine pins .....	B43
speeds of machinery .....	Z18
stock sizes, shapes and lengths for iron and steel bars..	B41
transmission chains and sprockets—silent chains....	B29b
unification of rules for the dimensioning of furnaces	
for burning solid fuel.....	B50
washers .....	B27
lock .....	B27b
plain .....	B27a

# Mining

coal	
classification ( <b>draft available, 25¢</b> ).....	M20
clean bituminous .....	M26
mine cars .....	M21
mine timbering .....	M22
trolley, storage battery and combination type locomotives for coal mines .....	M25

# Non-ferrous metallurgy

brass	
free cutting brass rod for use in screw machines....	H8
sheet high brass .....	H19
bronze	
manganese-bronze ingots for sand castings.....	H21
manganese-bronze sand castings.....	H20
trolley wire .....	H22.1
copper	
medium hard drawn wire.....	H15
trolley wire .....	H22.2
zinc and zinc ores.....	H1

Periodicals, reference data for.....	Z29
--------------------------------------	-----

# Petroleum products

fuel oil .....	K19
----------------	-----

# Pipe and fittings

cast iron flanged ammonia fittings.....	B16h
cast iron pipe and special castings.....	A21
face to face dimensions of ferrous flanged valves....	B16i
malleable iron or steel unions.....	B16j

Do not order any of these unless a price is indicated

pipe plugs .....	B16d1
steel companion flanges.....	B16e2
welding flanges .....	B16e1
Piping, pressure .....	B31
district heating .....	B31h
fabrication details .....	B31g
gas and air .....	B31e
hydraulic .....	B31b
materials and identifications.....	B31f
oil .....	B31e
power .....	B31a
refrigerating .....	B31d
Preferred numbers, table of (informally approved standard, 20¢) .....	Z17
Refrigerators .....	B38
Rules for rounding numerical values.....	Z25
Screw threads .....	
gages and gaging of screw threads.....	B1b
hose couplings .....	B33
pipe .....	
plumbers' .....	B2d
straight .....	B2e
taper .....	B2b
rigid electrical conduit .....	B2a
Sieves for testing purposes.....	Z23
Textiles .....	
blankets .....	L6
hosiery lengths .....	L8
sheets and sheeting .....	L4
shrinkage of woven cotton yard goods.....	L9
Water power .....	
rating of rivers .....	A36
Zinc coating .....	G8
hardware and fastenings .....	G8a
marine hardware and ship fittings.....	G8f
methods of testing .....	G8g
pipes, conduits and their fittings.....	G8d
wire and wire products.....	G8e

Do not order any of these unless a price is indicated

ard  
eve  
IND  
Mocom  
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29 V

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